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**ANALYSIS OF MBTA  
BUDGET & SERVICE  
PERFORMANCE  
FOR 1978**

**MBTA ADVISORY BOARD  
BUDGET COMMITTEE**



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BUDGET COMMITTEE MEMBERSHIP

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Chapter 563 of the Acts of 1964 established the Massachusetts Bay Transportation Authority by amending the General Laws by inserting therein Chapter 161A. Section 6 of Chapter 1140 of the Acts of 1973 revised the organization of the MBTA effective January 1, 1975.

The affairs of the Authority are managed by a board of five directors all appointed by the governor; one with the approval of the Advisory Board; one with the approval of the 14 cities and towns that made up the original Metropolitan Transit Authority and one with the approval of the 65 cities and towns which were added to make up the Massachusetts Bay Transportation Authority.

The Advisory Board has the sole statutory authority for approving the annual expense budget of the Authority. It is also the responsibility of the Advisory Board and its Budget Committee to provide oversight and review of the spending of the agency. To that end we have produced this document as an annual report of the MBTA's performance during the preceeding fiscal year.

The report is divided into three sections. It begins with an overview of 1978. The second section focuses on the budget and compares the 1978 experience with 1977 in both income and expenditure categories. The last section analyzes the service performance of the MBTA in 1978 and again compares it to 1977.

The reader should be aware that the MBTA's fiscal year is the calendar year. The assessment figures in this document will therefore, impact the fiscal year 1980 cherry sheets and budgets of the municipalities.

## I. 1978 OVERVIEW

1978 will be best recalled as the year the cities' and towns' assessment went down by 4.2%. The only other time this happened in the history of the Authority was in 1973, the year the Legislature first agreed to fund 50% of the operating deficit. (See p. 4).

A number of factors went into holding the line of the local assessments. Both increased federal and state aid as well as strong management contributed to the improved "bottom line".

Contract assistance from the state and federal governments was up ten million dollars; more assistance came when Governor Dukakis agreed to fully fund the state's 90% obligation for the debt service on the capital program as a separate item rather than roll that into the overall 50% state aid package.

Management brought the Total Current Expense Budget in at the 1977 figure plus inflation. The Net Cost of Service Loss, the figure which is subdivided to produce the local share of the deficit, actually came in below budget. Despite a 24% increase in wages for the month of February due to the Blizzard of 1978, the entire wage item came in well below the 1977 figure plus inflation.

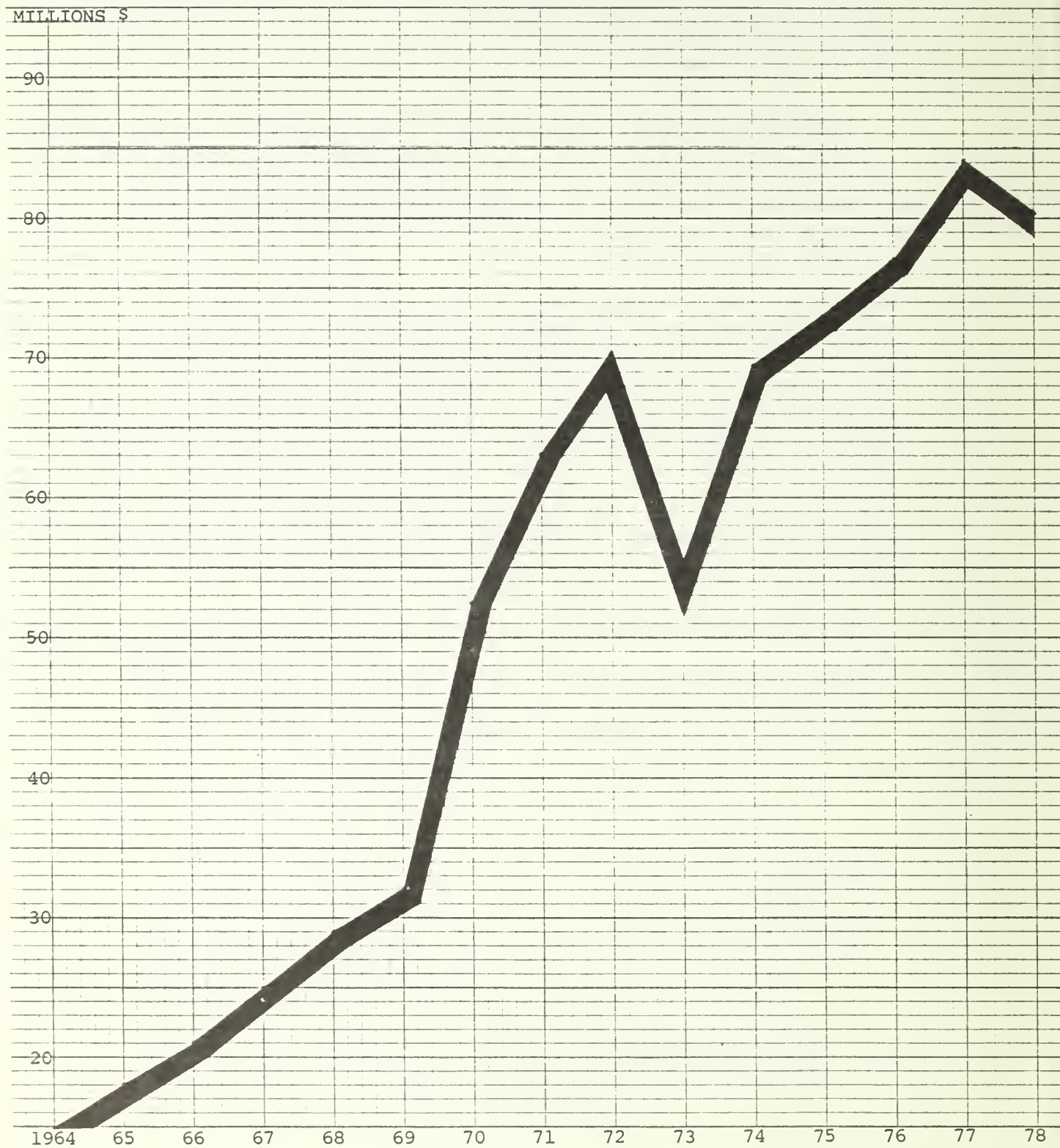
1978 was a unique year in many ways for the MBTA:

- Record-breaking blizzards early in 1978 caused equally record-breaking overtime costs and vehicle damage at the MBTA. At the same time, the MBTA served the public in even larger ways by aiding in rescue operations and thereby increasing public awareness of and appreciation for mass transportation.
- Legislation reforming arbitration procedures was enacted. Though not directly affecting the 1978 Wage Line Item, it will serve to aid in controlling the escalation rate of these costs for future years.

- At the time of the approval of the 1978 Budget the Advisory Board received a commitment from the Governor for state pickup of 50% of the 1978 MBTA Operating Deficit including State Treasurer's Charges and exclusive of the statutorily required state payment of 90% of the Debt Service for Capital Expansion.
- The first Supplementary Budget Request since 1975 was presented to the Advisory Board for approval. This request, unprecedented in that its expenditures had already been incurred, highlighted the need to strengthen communication between the MBTA and the Advisory Board and to take measures which would increase Advisory Board ability to monitor MBTA expenditures and internal transfers.
- Ridership increased for the third consecutive year yielding a positive impact on transportation revenue. The pre-paid pass program, one of the most innovative marketing techniques ever employed by the MBTA, has proved immensely popular and is responsible for some of the increase. The success of the pre-paid pass program illustrates the importance that the "T" must place on encouraging new means of generating revenue from all possible sources in order to reduce the deficit.
- A change during the year in the federal formula for allocating Federal Operating Assistance brought additional aid to the MBTA region further lowering the 1978 Net Cost of Service to the cities and towns.

1978 was a year of changes, challenges, and achievements at the MBTA. Both MBTA management and the Advisory Board must learn from the events of 1978 in order to continue responsible, effective operation and improvement of our public transportation system.

# NET MUNICIPAL SHARE COST OF SERVICE 1964 - 1978





## II. ANALYSIS OF 1978 BUDGET PERFORMANCE

The 1978 MBTA budget represents a spending hike of 8.4% above 1977. The increase basically centered around wages, increased commuter rail service and debt service costs. Income, however, showed its most dramatic leap in years with a 10% jump which partially offset the higher costs of doing business.

The figures showing the state and local shares of the deficit assume the approval by the Legislature of the agreement between the State and the Advisory Board. The final cost to the cities and towns will be 4.2% lower than the final cost of the 1977 deficit. (For community breakdown of the assessments for 1977 and 1978, see pages 11, 12 and 13). This will be the first time since 1973 (when the state first paid 50% of the deficit) that the local share of the deficit has been below that of the previous year. (See p. 14 detailing MBTA Deficit History and Projections). This was made possible because both income and assistance were higher than had been anticipated at the time of budget preparation and approval and because management controlled spending. In the final analysis, the total over-expenditure of \$5,661,566 was offset by an excess income of \$4,281,631. This resulted in a Cost of Service in Excess of Income which was only \$1,379,935 over the budgeted figure of \$193,399,286. The \$1,379,935 was, in turn, more than offset by an increase of \$4,772,137 over the expected amount of federal and state assistance. The resultant Net Cost of Service Loss was \$146,289,971, which was \$3,382,202 below the \$149,732,174 originally budgeted for and approved by the Advisory Board.

Page 15 details the 1978 MBTA Current Expense Budget as approved by the Advisory Board in December 1977, the Supplementary Budget Request No. 1 in the amount of \$7.7 million presented to the Advisory Board for approval in February of 1979, the reductions to that request of \$2.1 million voted by the Advisory Board on March 5, 1979 and the resulting final 1978 Advisory Board approved Current Expense Budget in the amount of \$261,451,289. An increase of \$5.6 million over the originally approved budget.

Pages 16-17 show a comparison of actual income and expenditures for 1978 compared to the December 1977 approved budget for 1978, the actual variances over and under that budget, and the final March 5, 1979, approved budget of income and expenditures and resulting variances.

For purposes of understanding the Supplementary Budget Request and the consequent Advisory Board action, we will concentrate on Column 3 of pages 16-17 showing variances of Actual Income and Expenditures in relation to the originally approved 1978 Budget.

#### INCOME

Total actual income in 1978 was \$66,672,599 which exceeded budgeted income of \$62,390,968 by \$4,281,631.

The largest contributors to this excess were Transportation Revenue and Non-Operating Income. Transportation Revenue which exceeded the budgeted amount by \$1,662,177 represents increased ridership due in part to the expansion of the pass program. We are encouraged by the 3.2% hike in revenue in the system and are particularly impressed with the Green Line increase of 7.4%. A breakdown of revenue allocation by line is shown on p. 18.

Non-Operating Income exceeded the budgeted amount by \$2,554,828 due primarily to proceeds from funds invested on the open market beyond that anticipated at the time the 1978 budget was formulated.

#### EXPENDITURES

The total expenditure in 1978 from the Current Expense Budget was \$261,451,820. This total expenditure brought Total Current Expenses above the amount initially approved by the Advisory Board and necessitated approval of a supplementary budget by the Advisory Board before certification of the Net Cost of Service could be made by the MBTA to the State Treasurer.

The aggregate of item over-expenditures totalled \$7,704,973, which was the amount requested by the MBTA for Supplementary Budget No. 1. However, this \$7,704,973 over-spending was offset by under-spending of line item budgets totalling \$2,043,407, thus reducing the over-expenditure to \$5,661,566. The Advisory Board voted a \$2,043,407 reduction to the Supplementary Budget Request and approved a Final 1978 Total Current Expense Budget of \$ 271,451,820, the amount actually spent, which represents an increase of \$5,661,566 over the amount originally approved for 1978.

The budget overruns among the expense items which contributed most heavily to the total over-expenditure were an overrun of \$3,222,085 in the Wage Item, \$821,307 in MBTA Pensions, and \$1,905,640 in Interest on Unfunded Debt.

A chart detailing MBTA wages including overtime appears on p. 19. Wages accounted for 46% of the total "T" expenditures budget. The final wage line was up \$5,684,920 from the previous year or 4.9%

An increase of 39.7% occurred in the month of February alone when the blizzard forced the MBTA to rely on extensive overtime in order to provide basic service. Page 20 shows that Actual 1978 Operating Overtime costs were \$10.4 million, which was \$ 5.4 million over budget.

The Wage and Pensions over-expenditures are also related to payment of cost-of-living adjustments mandated by a court decision which were not provided for in the budget. The unbudgeted cost-of-living adjustments required an expenditure of approximately \$1.8 million. Savings totalling approximately \$4 partially offsetting these over-expenditures were achieved by tight management control of positions supported by the operating budget.

On p. 21 is the manpower summary for 1978. For comparison purposes we have included the figures from the previous three years as well. Permanent operating employees increase by just over one half of 1%. The four year analysis shows a decrease in permanent operating employees of 3.7%. This larger trend is one that the Advisory Board applauds and is anxious to see continue.

The over-expenditure of \$1,905,640 in Interest on Unfunded Debt was due to management's decision to borrow working capital on the open market rather than from the State Treasurer. Though increasing costs, this investment generated additional income of approximately \$2.5 million. This more than offset the costs involved, saving approximately \$2 million in State Treasurer's charges and producing a small profit for the Authority.



Other over-expenditures needing clarification are those in the Materials Department and in the Commuter Railroad Subsidy lines.

Materials. The over-expenditure of \$527,871 was primarily the result of the necessity to reserve an additional amount for the write-off of obsolete materials due to the deployment of new equipment.

Commuter Railroad Subsidy. To avoid confusion over figures, shown for this line item in our report on MBTA Budget Performance for the first 9 months of 1978, it is necessary to explain that in the 1978 Budget format the amount for the Commuter Railroad Subsidy approved by the Advisory Board represented the result of anticipated gross costs minus anticipated Federal Railroad Assistance and minus reimbursement from Rhode Island. This is the figure of \$25,800,000 originally estimated as detailed in Column 1 of p. 15. Actual gross costs ran \$3,815,826 over the gross cost anticipated at the time the budget was approved. However, since federal aid and reimbursement from Rhode Island were both higher than had been expected, this over-expenditure was reduced to a minimal figure.

Pages 22-25 show Commuter Railroad ridership and revenue. (Note: Revenue from ridership does not appear as income since by contract it is applied directly to B & M operating costs).

Another extremely significant effect of the post-expenditure submission of the Supplemental Budget Request was the dramatic emphasis placed on the need for more timely communication flow between the Advisory Board and MBTA management. Corrective action was immediately taken by the Advisory Board in voting to tighten the transfer of funds procedures which MBTA management had been following in accordance with

the 1975 Advisory Board Transfer of Funds Vote. By way of an amended vote cast at the March 5, 1979, meeting, the Advisory Board put the following stipulations into effect:

1. All transfers must be submitted in writing to the Budget Committee, must be signed by the Chairman and Chief Executive Officer, and must state the specific reasons for the transfer and the date for implementation.
2. Transfer amounts for each line item are calculated on a cumulative basis and as a percent of the original Advisory Board approved line item budget.
3. Budget Committee approval is required for:
  - transfers of more than 5% but less than 15% of an approved line item budget;
  - transfers of more than 15% of approved line item budgets under \$ 500,000.
4. Full Advisory Board approval is required for transfers amounting to more than 15% of an approved line item budget of or greater than \$ 500,000.

In addition, the Advisory Board can by vote restrict transfers out of a line item containing a priority program.

Through this procedure, the Advisory Board will be better able to keep abreast of budget adjustments and anticipated expenditures thereby reducing the possibility of similar supplementary budget requests in the future.



## MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

## COMPARATIVE ANALYSIS OF THE NET COST OF SERVICE, INTEREST CHARGED BY STATE TREASURER, AND BOSTON METROPOLITAN DISTRICT EXPENSES FOR THE CALENDAR YEARS 1977 AND 1978 AND THE RELATED IMPACT ON THE FISCAL YEARS 1979 AND 1980 TAX RATES

Cities and Towns	Total Actual 1977 Assessment	Load on Fiscal Year 1979 Tax Rate*	Fiscal Year 1979 Tax Rate	Total Estimated 1978 Assessment \$80,564,972.03	Estimated Load in Fiscal Year 1980 Tax Rate**
Arlington	\$1,941,399.51	\$5.38	\$84.60	\$1,905,085.96	\$5.28
Ashland	132,228.38	1.17	48.00	127,104.84	1.08
Bedford	184,701.57	2.07	102.00	184,863.91	2.03
Belmont	989,764.15	3.79	67.00	941,629.49	3.59
Beverly	517,802.77	2.16	83.60	497,942.27	2.06
Boston	35,616,841.21	20.41	252.90	33,824,713.49	19.61
Braintree	590,633.31	1.10	44.50	574,873.35	1.04
Brookline	2,955,056.22	6.55	100.00	2,726,062.76	6.00
Burlington	330,762.34	1.29	74.00	333,889.57	1.27
Cambridge	4,711,904.67	13.88	188.60	4,438,783.17	12.99
Canton	229,302.48	1.23	60.60	220,666.13	1.15
Chelsea	871,696.39	15.11	253.00	854,313.83	14.66
Cohasset	86,079.37	.87	49.60	82,912.79	.83
Concord	196,137.69	.55	36.20	188,970.75	.52
Danvers	376,447.59	1.87	77.00	365,566.21	1.80
Dedham	439,506.67	1.69	57.20	430,481.87	1.62
Dover	65,900.84	.46	24.50	63,360.84	.44
Duxbury	88,548.37	.40	38.40	85,370.22	.39
Everett	1,371,935.92	6.56	132.00	1,332,598.35	6.28
Framingham	758,590.68	1.34	68.00	731,279.45	1.29
Hamilton	102,375.95	.96	29.00	98,337.08	.89
Hanover	138,176.38	1.71	35.70	132,939.00	.70
Hingham	281,665.97	1.78	78.00	278,814.76	1.71
Holbrook	209,229.30	3.37	84.00	203,316.06	3.25
Hull	138,163.40	1.29	65.80	135,527.69	1.27
Lexington	536,940.97	2.08	90.20	526,770.97	2.00
Lincoln	127,478.22	2.34	25.48	122,391.26	.81
Lynn	1,339,551.63	4.86	168.00	1,281,018.86	4.73
Lynnfield	160,187.21	.70	28.30	153,993.19	.67
Malden	1,827,124.48	15.21	220.40	1,774,081.66	14.97
Manchester	63,610.07	.48	29.50	61,273.80	.46
Marblehead	332,857.76	1.58	63.00	323,861.41	1.52
Marshfield	198,652.82	1.55	96.00	191,223.82	1.47

Cities and Towns	Total Actual 1977 Assessment \$84,158,098.97	Load on Fiscal Year 1979 Tax Rate*	Fiscal Year		Total Estimated 1978 Assessment \$80,564,972.03	Estimated Load in Fiscal Year 1980 Tax Rate**
			1979	Tax Rate		
Maynard	\$128,484.28	\$2.21	\$92.00		\$123,659.16	\$2.08
Medfield	119,750.93	1.60	77.00		115,367.89	1.50
Medford	2,258,652.93	16.98	228.00		2,172,528.50	16.30
Melrose	582,398.68	2.43	64.00		570,499.31	2.37
Middleton	55,756.52	.83	32.70		53,639.34	.79
Millis	75,581.20	1.34	69.00		72,741.21	1.24
Milton	906,794.88	11.57	190.60		865,584.40	10.93
Nahant	92,748.38	5.32	118.00		91,743.99	5.22
Natick	421,296.16	2.16	95.50		407,117.69	2.09
Needham	435,673.70	1.33	56.60		421,193.53	1.27
Newton	2,862,487.24	7.32	170.40		2,704,670.45	6.74
Norfolk	57,951.38	1.49	63.65		55,820.12	1.35
North Reading	178,898.60	2.50	88.00		171,859.21	2.38
Norwell	118,890.91	1.11	55.00		114,261.79	1.04
Norwood	461,900.00	1.50	48.00		448,937.64	1.42
Peabody	650,941.75	1.92	71.90		638,483.47	1.85
Pembroke	164,847.33	2.81	109.50		158,480.15	2.65
Quincy	2,275,129.-	8.19	196.60		2,203,513.47	7.85
Randolph	479,495.34	3.14	89.00		466,901.30	3.01
Reading	376,444.14	1.33	46.00		358,960.52	1.25
Revere	1,709,495.14	17.05	254.00		1,644,192.36	16.51
Rockland	203,071.27	2.70	90.00		195,500.47	2.58
Salem	572,949.68	4.79	204.00		564,821.04	4.71
Saugus	493,433.53	2.11	59.90		481,881.40	2.03
Stear.	216,442.53	1.74	94.60		208,413.38	1.66
	202,266.44	1.39	57.00		194,248.85	1.29
Sherborn	47,918.73	.53	38.20		46,070.97	.50
Somerville	3,078,805.35	21.75	266.60		3,025,326.21	21.60
Stoneham	318,418.23	1.20	46.25		305,983.25	1.14
Sudbury	183,375.68	1.04	59.00		176,439.31	.98
Swampscott	253,719.26	2.18	85.60		241,833.66	2.05
Topsfield	72,328.07	.72	28.00		69,578.49	.68
Wakefield	409,824.77	4.92	176.50		405,566.97	4.83
Walpole	247,327.21	1.72	71.80		239,479.29	1.63
Waltham	801,557.45	1.53	65.10		786,313.55	1.48
Watertown	1,243,042.44	12.63	228.00		1,194,707.68	12.15
Wayland	192,448.87	.90	45.85		185,069.21	.85
Wellesley	372,454.97	1.25	66.80		359,305.04	1.20
Wenham	53,261.87	1.40	25.50		51,238.07	.73
Weston	149,453.89	.75	49.00		143,783.12	.70
Westwood	212,769.84	1.39	66.60		207,111.54	1.33

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Cities and Towns	Total Actual 1977 Assessment	Load on Fiscal Year 1979 Tax Rate*	Fiscal Year 1979 Tax Rate	Total Estimated 1978 Assessment	Estimated Load in Fiscal Year 1980 Tax Rate**
	<u>\$84,158,098.97</u>			<u>\$80,564,972.03</u>	
Weymouth	\$926,652.76	2.23	\$76.80	\$902,026.68	\$2.21
Wilmington	235,341.35	1.57	79.00	217,127.84	1.41
Winchester	358,093.85	1.76	74.80	346,447.95	1.68
Winthrop	405,552.98	4.62	38.60	397,287.63	2.20
Woburn	<u>582,714.27</u>	1.16	44.60	<u>565,236.02</u>	1.09
	\$84,158,098.97			\$80,564,972.03	

\* Based on January 1, 1977 Assessed Valuations

\*\* Based on January 1, 1978 Assessed Valuations

SUMMARY

	Fiscal Period 1/1/77 to 12/31/77	Fiscal Period 1/1/78 to 12/31/78
Net Assessable Cost of Service	\$78,974,566.16	\$74,048,972.03
Interest charged by State Treasurer on Temporary Borrowings	5,167,532.81	6,500,000.00 (Estimated)
Expenses of Boston Metropolitan District	<u>16,000.00</u>	<u>16,000.00</u>
Total	\$84,158,098.97	\$80,564,972.03

M.B.T.A. DEFICIT HISTORY AND PROJECTION  
(\$ 000)

	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>Δ</u> Budget 1979
Total Current Expenses	\$ 152,810	\$ 167,508	\$ 193,750	\$ 215,174	\$ 224,176	\$ 241,198	\$ 261,452	\$ 274,388
State Treasurer's Charges	2,140	3,240	5,559	8,437	8,502	5,168	6,500	8,500
Total Cost	154,950	170,748	199,309	223,611	232,678	246,366	267,952	282,888
Total Income	60,569	60,600	64,736	65,824	60,449	60,596	66,673	69,808
Federal Operating Assistance	---	---	6,241	11,173	16,869	16,862	22,487	27,900
Total Deficit	94,381	110,148	128,332	146,614	155,360	168,908	178,792	185,180
Deficit Increase Over Previous Year								
Dollars	13,088	15,767	18,184	18,282	8,746	13,548	9,884	6,388
Percent	16.1%	16.7%	16.5%	14.2%	6.0%	8.7%	5.9%	3.6%
State Share of Deficit	18,827	54,566*	58,553	73,474	77,938	84,750	98,202**	103,287**
Local Share of Deficit	75,554	55,582*	69,669	73,140	77,423	84,158	80,590**	81,893**
% Increase Over Previous Year	19.2%	(26.4)%*	25.5%	4.8%	5.9%	8.7%	(4.2)%	1.6%

\* 1st State pick-up of 50% of deficit

\*\* Based on Governor's commitment to Advisory Board for State pick-up of 50% of operating deficit plus 90% Debt Service (Letter of Dec. 14, 1977)

Δ 1979 Approved Current Expense Budget format includes Gross Cost of Commuter Rail. In prior years, assistance was netted out of this item.

NOTE: 1979 deficit projection assumes no Supplementary Budget.



M.B.T.A. CURRENT EXPENSE BUDGET  
FOR CALENDAR YEAR 1978

	Voted 12/1977 Ad.Bd.Appr. <u>1978 Budget</u>	2/1979 1978 Supp. Budg. Req. <u>No. 1</u>	3/5/1979 Adv. Bd. <u>Reductions</u>	3/5/1979 Adjusted* Ad.Bd.Appr. <u>Budget</u>
OPERATING WAGES & FRINGE BENEFITS				
1. Wages	\$ 118,203,774	\$ 3,222,085	\$ (444,334)	\$ 120,981,525
2. MBTA Pensions	15,904,351	821,307	(498,393)	16,227,265
3. Social Security	6,750,000	--	--	6,750,000
4. Workmen's Comp.	1,575,000	237,198	(237,198)	1,575,000
5. Acc. & Sick. Ins.	503,704	--	--	503,704
6. Group Life Ins.	913,929	--	--	913,929
7. Bl.Cross/Bl.Shield	12,305,287	380,283	(380,283)	12,305,287
8. Unemploy. Ins.	228,000	--	--	228,000
9. Uniform & Workcl.	414,490	--	--	414,490
Less:	(3,000,000)	--	--	3,000,000
TOTAL OPERATING WAGES & FRINGE BENEFITS	\$ 153,798,535			\$ 156,899,200
10. Materials and Other Items	\$ 21,094,875	\$ 527,871	\$ -0-	\$ 21,622,746
11. Inj. & Damages	2,083,500	16,455	( 16,455)	2,083,500
12. Int. on Unf. Debt	5,374,900	1,905,640	-0-	7,280,540
13. Fuel	13,289,456	--	--	13,289,456
14. Taxes (Other than Incl. Above)	830,250	--	--	830,250
15. Railroad Commuter Subsidy	25,800,000	95,410	( 95,410)	25,800,000
16. Bus Carrier Subs.	608,452	286,865	(286,865)	608,452
TOTAL OPERATING EXPENSES AND TAXES	\$ 222,879,968			\$ 228,414,144
SCHEDULE OF FIXED CHARGES				
17. Int. on Funded Debt (MTA)	\$ 3,603,906	\$ 170,563	\$ ( 43,173)	\$ 3,731,296
18. Int. on Funded Debt (MBTA)	16,905,088	--	--	16,905,088
19. Payment on Funded Debt (MTA)	2,999,259	--	--	2,999,259
20. Payment on Funded Debt (MBTA)	9,335,000	--	--	9,335,000
21. Camb. Subw. Rental	5,583	41,296	( 41,296)	5,583
22. Bank Serv. Chgs.	61,450	--	--	61,450
TOTAL FIXED CHARGES	\$ 32,910,286			\$ 33,037,676
TOTAL CURRENT EXPENSES	\$255,790,254	\$ 7,704,973	\$ (2,043,407)	\$ 261,451,820

COMPARISON 1978 M.B.T.A. NET COST OF SERVICE  
ACTUAL TO BUDGET

	Column 1 <u>12/1977</u> Approved Budget 1978	Column 2 <u>12/31/78</u> Actual 1978	Column 3 <u>Variance</u> Over/(Under) Budget	Column 4 <u>3/5/79</u> Approved Budget 1978	Column 5 <u>Over/</u> (Under) Budget
<b>INCOME</b>					
Revenue from Transportation	\$ 53,533,968	\$ 55,196,145	\$ 1,662,177	\$ 55,196,145	-0-
Revenue from Other Rwy. Operations	1,975,000	2,103,421	128,421	2,103,421	-0-
Non-Operating Income	5,545,000	8,099,828	2,554,828	8,099,828	-0-
Gas & Diesel Taxes Reimbursable	399,500	409,183	9,683	409,183	-0-
Reimbursement - Outside District	937,500	864,022	(73,478)	864,022	-0-
<b>TOTAL INCOME</b>	<b>\$ 62,390,968</b>	<b>\$ 66,672,599</b>	<b>\$ 4,281,631</b>	<b>\$ 66,672,599</b>	<b>-0-</b>
<b>OPERATING WAGES &amp; FRINGE BENEFITS</b>					
Wages	\$ 118,203,774	\$ 121,425,859	\$ 3,222,085	\$ 120,981,525	\$ 444,334
M.B.T.A. Pensions	15,904,351	16,725,658	821,307	16,227,265	498,393
Social Security	6,750,000	6,712,769	(37,231)	6,750,000	(37,231)
Workmen's Compensation	1,575,000	1,812,198	237,198	1,575,000	237,198
Accident & Sickness Insurance	503,704	407,533	(96,171)	503,704	(96,171)
Group Life Insurance	913,929	688,547	(225,382)	913,929	(225,382)
Blue Cross - Blue Shield	12,305,287	12,685,570	380,283	12,305,287	380,283
Unemployment Insurance	228,000	52,350	(175,650)	228,000	(175,650)
Uniform & Workclothes	414,490	414,089	(401)	414,490	(401)
Less: Fringe Benefits Costs Capitalized	(3,000,000)	(3,408,571)	(408,571)	(3,000,000)	(408,571)
<b>TOTAL OPERATING WAGES AND FRINGE BENEFITS</b>	<b>\$ 153,798,535</b>	<b>\$ 157,516,002</b>	<b>\$ 3,717,467</b>	<b>\$ 156,899,200</b>	<b>\$ 616,802</b>
Materials and Other Items	\$ 21,094,875	\$ 21,622,746	\$ 527,871	\$ 21,622,746	-0-
Injuries & Damages	2,083,500	2,099,955	16,455	2,083,500	16,455
Interest on Unfunded	5,374,900	7,280,540	1,905,640	7,280,540	-0-
Fuel	13,289,456	12,261,738	(1,027,718)	13,289,456	(1,027,718)
Taxes (Other than Included Above)	830,250	792,861	(37,389)	830,250	(37,389)
Railroad Commuter Subsidy	25,800,000	25,895,410	95,410	25,800,000	95,410
Bus Carrier Subsidy	608,452	895,317	286,865	608,452	286,865
<b>TOTAL OPERATING EXPENSES &amp; TAXES</b>	<b>\$ 222,879,968</b>	<b>\$ 228,364,569</b>	<b>\$ 5,484,601</b>	<b>\$ 228,414,144</b>	<b>\$ (49,575)</b>



# SCHEDULE OF FIXED CHARGES

Interest on Funded Debt (M.T.A.)	\$ 3,603,906	\$ 3,774,469	\$ 170,563	\$ 3,731,296	\$ 43,173
Interest on Funded Debt (M.B.T.A.)	16,905,088	16,904,784	(304)	16,905,088	(304)
Payment on Funded Debt (M.T.A.)	2,999,259	2,999,259	---	2,999,259	-0-
Payment on Funded Debt (M.B.T.A.)	9,335,000	9,326,748	(8,252)	9,335,000	(.01)
Cambridge Subway Rental and Miscellaneous Debits	5,583	46,879	41,296	5,583	41,296
Bank Service Charges	61,450	35,112	(26,338)	61,450	(26,338)
TOTAL FIXED CHARGES	\$ 32,910,286	\$ 33,087,251	\$ 176,965	\$ 33,037,676	\$ 49,575
TOTAL CURRENT EXPENSES	\$ 255,790,254	\$ 261,451,820	\$ 5,661,566	\$ 261,451,820	-0-
COST OF SERVICE IN EXCESS OF INCOME	\$ 193,399,286	\$ 194,779,221	\$ 1,379,935	\$ 194,779,221	-0-
Less:					
State Fin. Contr. Assist (M.T.A.)	\$ 3,000,000	\$ 3,000,000	-0-	\$ 3,000,000	-0-
State Fin. Contr. Assist (M.B.T.A.)	21,696,562	21,696,562	-0-	21,696,562	-0-
State Fin. Contr. Assist (RR)	562,500	1,305,265	742,765	1,305,265	-0-
Federal Operating Assistance	18,508,050	22,487,422	3,979,372	22,487,422	-0-
TOTAL CONTRACT ASSISTANCE	\$ 43,767,112	\$ 48,489,249	\$ 4,722,137	\$ 48,489,249	-0-
NET COST OF SERVICE LOSS	\$ 149,632,174	\$ 146,289,971	\$ (3,342,202)	\$ 146,289,971	-0-
STATE TREASURER'S INTEREST CHGS.	\$ 8,500,000	\$ 6,500,000	\$ (2,000,000)	\$ 6,500,000	-
NET OPERATING DEFICIT	\$ 158,132,174	\$ 152,789,971	\$ (5,342,203)	\$ 152,789,971	-
STATE SHARE OF OPERATING DEFICIT	75,240,475	72,199,641	\$ (3,040,834)	\$ 72,199,641	-
LOCAL SHARE OF OPERATING DEFICIT	82,891,699	80,590,330	\$ (2,301,369)	\$ 80,590,330	-

ALLOCATION OF  
REVENUE FROM TRANSPORTATION BY LINE

	<u>1977</u>	<u>1978</u>	<u>\$</u> <u>Increase/ (Decrease)</u>	<u>%</u>
ORANGE LINE	\$ 5,964,211	\$ 6,139,940	\$ 175,729	3.0%
BLUE LINE	1,419,081	1,352,089	(66,992)	(4.7)
RED LINE:				
Cambr.-Dorchester	5,306,444	5,248,319	(58,125)	(1.1)
South Shore	2,542,398	2,490,959	(51,439)	(2.0)
Mattapan (Streetcar)	<u>19,081</u>	<u>23,809</u>	<u>4,728</u>	<u>24.8</u>
	7,867,923	7,763,087	(104,836)	(1.3)
GREEN LINE:				
Reservoir-Lake St.	2,673,114	2,728,307	55,193	2.1
Riverside	1,627,008	1,975,484	348,479	21.4
Arborway	<u>928,551</u>	<u>938,422</u>	<u>9,871</u>	<u>1.1</u>
Total Surface	5,228,673	5,642,213	413,540	7.9
Central Subway	<u>597,884</u>	<u>616,923</u>	<u>19,039</u>	<u>3.2</u>
TOTAL GREEN LINE	5,826,557	6,259,136	432,579	7.4
TRACKLESS TROLLEY	125,090	122,266	(2,824)	(2.3)
BUS:				
Cabot-Albany	7,132,434	7,108,164	(24,270)	(0.3)
Arboway	3,494,852	3,473,862	(20,990)	(0.6)
Somerville-				
Arlington Heights	3,141,059	3,116,137	(24,922)	(0.8)
Salem St. Rating Sta.				
Charlestown & Eagle	5,091,556	4,795,333	(296,223)	(5.8)
Lynn	1,642,117	1,687,573	45,456	2.8
Quincy	<u>1,561,461</u>	<u>1,592,177</u>	<u>30,716</u>	<u>2.0</u>
TOTAL BUS	22,063,479	21,773,246	(290,233)	(1.3)
SPECIAL BUS	165,258	5,618	(159,640)	(96.6)
ADJUSTMENTS				
Pass Program	3,313,225	4,752,615	1,439,390	43.4
Sale of Tickets	371,207	413,728	42,521	11.5
TOTAL SYSTEM	\$ 53,475,455	\$ 55,196,147	\$ 1,720,692	3.2%

M.B.T.A. OPERATING WAGES INCLUDING OVERTIME  
(Source: RUN RAS 860)

	<u>1977</u>	<u>1978</u>	<u>\$</u> <u>Increase/ (Decrease)</u>	<u>%</u>
JAN	\$ 10,190,015	\$ 10,066,370	\$ (123,645)	(1.2)%
FEB	8,692,607	10,781,501	2,088,894	24.0
MAR	<u>10,864,718</u>	<u>11,154,923</u>	<u>290,205</u>	<u>2.7</u>
FIRST QUARTER	29,747,340	32,002,793	2,255,453	7.6
APR	8,646,951	8,983,136	336,185	3.9
MAY	8,391,809	8,717,168	325,395	3.4
JUN	<u>11,334,089</u>	<u>11,602,594</u>	<u>268,505</u>	<u>2.4</u>
SECOND QUARTER	28,190,849	29,302,898	1,112,049	3.9
SECOND HALF	58,120,190	61,289,742	3,169,552	5.5
JUL	8,755,261	8,848,800	93,539	1.2
AUG	8,627,235	8,818,894	191,659	2.2
SEP	<u>11,117,239</u> 1	<u>11,411,118</u>	<u>293,879</u>	<u>2.6</u>
THIRD QUARTER	28,499,735	29,078,812	579,077	2.0
9 MONTH TOTAL	86,619,925	90,368,554	3,748,629	4.3
OCT	8,711,011	9,060,591	349,580	4.0
NOV	8,866,004	9,436,329	570,325	6.4
DEC	<u>11,543,999</u>	<u>12,560,386</u>	<u>1,016,387</u>	<u>8.8</u>
FOURTH QUARTER	29,121,014	31,057,306	1,936,292	6.6
FULL YEAR TOTAL	\$ 115,740,939	\$ 121,425,859	\$ 5,684,920	4.9%

M.B.T.A. OPERATING OVERTIME  
(Source: MBTA Monthly Reports)

	<u>1977</u>	<u>1978</u>	<u>\$</u> <u>Change</u>	<u>%</u> <u>Over/</u> <u>(Under)</u>
JAN	\$ 1,597,874	\$ 1,504,348	\$ (93,526)	(5.9)%
FEB	574,197	2,233,614	1,659,417	289.0
MAR	<u>820,707</u>	<u>993,898</u>	<u>173,191</u>	<u>21.1</u>
FIRST QUARTER	2,992,778	4,731,860	1,739,082	58.1
APR	458,472	477,159	18,687	4.1
MAY	516,552	536,752	20,200	3.9
JUN	<u>597,971</u>	<u>700,249</u>	<u>102,278</u>	<u>17.1</u>
SECOND QUARTER	1,572,995	1,714,160	141,165	9.0
FIRST HALF	4,565,773	6,446,020	1,880,247	41.2
JUL	481,829	482,808	979	0.2
AUG	509,430	554,346	45,916	9.0
SEP	<u>648,006</u>	<u>648,970</u>	<u>961</u>	<u>0.1</u>
THIRD QUARTER	1,639,265	1,686,124	47,859	2.9
9 MONTH TOTAL	6,205,038	8,132,144	1,928,106	31.1
OCT	278,382	453,103	174,721	62.8
NOV	353,888	517,056	163,168	46.1
DEC	<u>755,643</u>	<u>1,340,823</u>	<u>585,180</u>	<u>77.4</u>
FOURTH QUARTER	1,387,913	2,310,982	923,069	66.5
FULL YEAR	\$ 7,592,951	\$ 10,443,126	\$ 2,851,175	37.6%

1978 Budget Allocation = \$ 5,018,078.

Actual 1978 was over budget by \$ 5,426,138 or 108.1%.

M.B.T.A. MANPOWER SUMMARY  
1975 - 1978 (End of Year)

<u>MANPOWER</u>	<u>Actual 1975</u>	<u>Actual 1976</u>	<u>Actual 1977</u>	<u>Actual 1978</u>
Total Roll	6,403	6,285	6,341	6,597
Temporary	83	107	69	122
Capital	174	233	387	555
Permanent Operating	6,146	5,945	5,885	5,920

M.B.T.A. MANPOWER CHANGES  
1975 - 1978 (End of Year)

<u>MANPOWER</u>	<u>Actual 1975</u>	<u>Actual 1976</u>	<u>Actual 1977</u>	<u>Actual 1978</u>
New Hires	187	310	433	783
Attritions	(373)	(417)	(364)	(532)
Net Change	(186)	(107)	69	251
Permanent Employees	6,320	6,178	6,272	6,475

COMMUTER RAILROAD  
BOSTON & MAINE - NORTHERN ROUTES

TOTAL PASSENGERS - IN AND OUT OF BOSTON

	<u>1977</u>	<u>1978</u>	<u>Increase/(Decrease)</u>	
			%	
JANUARY	398,934	404,669	5,735	1.4%
FEBRUARY	388,566	385,441	(3,125)	(0.8)
MARCH	434,779	409,449	(25,330)	(5.8)
APRIL	384,521	352,981	(31,540)	(8.2)
MAY	376,707	378,867	2,160	0.6
JUNE	376,906	368,815	(8,091)	(2.1)
JULY	342,490	320,095	(22,395)	(6.5)
AUGUST	369,892	365,678	(4,214)	(1.1)
SEPTEMBER	383,110	359,853	(23,257)	(6.1)
OCTOBER	409,372	406,340	(3,032)	(0.7)
NOVEMBER	385,333	391,826	6,493	1.7
DECEMBER	<u>405,152</u>	<u>377,270</u>	<u>(27,882)</u>	<u>(6.9)</u>
Year Total	4,655,762	4,521,284	(134,478)	(2.9)%

TOTAL PASSENGER REVENUE

	<u>1977</u>	<u>1978</u>	<u>Increase/(Decrease)</u>	
			\$	%
JANUARY	\$ 443,947	\$ 453,352	\$ 9,405	2.1%
FEBRUARY	411,601	441,453	29,852	7.3
MARCH	469,393	410,109	(59,284)	(12.6)
APRIL	394,200	371,784	(22,416)	(5.7)
MAY 1	415,760	418,835	3,075	0.7
JUNE	392,630	378,096	(14,534)	(3.7)
JULY	385,884	384,111	(1,773)	(0.5)
AUGUST	411,093	382,020	(29,073)	(7.1)
SEPTEMBER	438,065	409,377	(28,688)	(6.5)
OCTOBER	441,765	459,931	18,166	4.1
NOVEMBER	420,668	409,164	(11,504)	(2.7)
DECEMBER	<u>428,366</u>	<u>414,841</u>	<u>(13,525)</u>	<u>(3.1)</u>
Year Total	\$ 5,059,460	\$ 4,933,073	\$(126,387)	(2.3)%



COMMUTER RAILROAD  
BOSTON & MAINE - NORTHERN ROUTES

PASSENGERS IN AND OUT OF BOSTON - BY ROUTE

ROUTE	1977	1978	%	
			Increase/ (Decrease)	
EASTERN				
1st Quarter	359,314	368,065	8,751	2.4%
2nd Quarter	342,419	358,073	15,654	4.6
3rd Quarter	353,142	364,164	11,022	3.1
4th Quarter	368,232	387,452	19,220	5.2
TOTAL YEAR	1,423,107	1,477,754	54,647	3.8%
READING				
1st Quarter	325,586	302,226	(23,360)	(7.2)
2nd Quarter	296,638	262,709	(33,929)	(11.4)
3rd Quarter	271,260	238,723	(32,537)	(12.0)
4th Quarter	294,416	268,871	(25,545)	(8.7)
TOTAL YEAR	1,187,900	1,072,529	(115,371)	(9.7)
NEW HAMPSHIRE				
1st Quarter	324,631	314,543	(10,088)	(3.1)
2nd Quarter	302,334	283,805	(18,529)	(6.1)
3rd Quarter	282,442	260,860	(21,582)	(7.6)
4th Quarter	314,690	305,482	(9,208)	(2.9)
TOTAL YEAR	1,224,097	1,164,690	(59,407)	(4.8)
FITCHBURG				
1st Quarter	212,748	214,725	1,977	0.9
2nd Quarter	196,743	196,076	(667)	(0.3)
3rd Quarter	188,648	181,879	(6,769)	(3.6)
4th Quarter	222,519	213,631	(8,888)	(4.0)
TOTAL YEAR	820,658	806,311	(14,347)	(1.7)
TOTAL NORTHERN ROUTES				
1st Quarter	1,222,279	1,199,559	(22,720)	(1.9)
2nd Quarter	1,138,134	1,100,663	(37,471)	(3.3)
3rd Quarter	1,095,492	1,045,626	(49,866)	(4.6)
4th Quarter	1,199,857	1,175,436	(24,421)	(2.0)
TOTAL YEAR	4,655,762	4,521,284	(134,478)	(2.9)%

COMMUTER RAILROAD  
BOSTON & MAINE - SOUTHERN ROUTES

TOTAL PASSENGERS - IN AND OUT OF BOSTON

	<u>1977</u>	<u>1978</u>	<u>%</u> <u>Increase/(Decrease)</u>	
JANUARY	283,789	292,080	--	--
FEBRUARY	257,420	226,580	--	--
MARCH	280,848	309,503	--	--
APRIL	255,145	253,399	--	--
MAY	258,624	296,011	--	--
JUNE	268,702	287,532		
JULY	229,478	239,983	10,505	4.6
AUGUST	265,017	282,454	17,437	6.6
SEPTEMBER	258,228	270,573	12,345	4.8
OCTOBER	261,124	288,956	27,832	10.7
NOVEMBER	275,585	288,554	12,969	4.7
DECEMBER	<u>292,588</u>	<u>284,739</u>	<u>(7,849)</u>	<u>(2.7)</u>
YEAR TOTAL	3,186,548	3,320,364	--	--
6 Months				
July - December	1,582,020	1,655,259	73,239	4.6%

TOTAL PASSENGER REVENUE

	<u>1977</u>	<u>1978</u>	<u>%</u> <u>Increase/(Decrease)</u>	
JANUARY	{ 917,409	349,653		
FEBRUARY		294,269	--	--
MARCH		275,944		
APRIL	305,243	262,658	--	--
MAY	309,171	319,407	--	--
JUNE	253,761	267,403	--	--
JULY	240,066	245,725	5,659	2.4
AUGUST	288,975	291,829	2,854	1.0
SEPTEMBER	298,556	320,086	21,530	7.2
OCTOBER	320,710	364,484	43,774	13.6
NOVEMBER	295,763	318,400	22,637	7.7
DECEMBER	<u>297,629</u>	<u>305,504</u>	<u>7,875</u>	<u>2.6</u>
YEAR TOTAL	3,527,283	3,615,362	--	--
6 Months				
July - December	1,741,699	1,846,028	104,329	6.0%

NOTE: Comparison to the 1st 6 months of 1977 is not possible because service did not include all the same areas and was in transition from operation by Conrail to B & M.



COMMUTER RAILROAD  
BOSTON & MAINE - SOUTHERN ROUTES

PASSENGERS IN AND OUT OF BOSTON BY ROUTE

ROUTE	1977	1978	%	
			Increase/ (Decrease)	
FRAMINGHAM				
1st Quarter	--	105,850	--	--
2nd Quarter	87,362	104,893	--	--
3rd Quarter	86,319	97,964	16,645	13.5%
4th Quarter	<u>94,852</u>	<u>101,210</u>	<u>5,358</u>	<u>5.6</u>
TOTAL YEAR	--	409,917	--	--
6 Months July-Dec.	181,171	199,174	18,003	9.9%
NEEDHAM				
1st Quarter	--	177,555	--	--
2nd Quarter	186,338	178,227	--	--
3rd Quarter	175,170	168,640	(6,530)	(3.7) %
4th Quarter	<u>180,812</u>	<u>170,824</u>	<u>(9,988)</u>	<u>(5.5)</u>
TOTAL YEAR	--	695,246	--	--
6 Months July-Dec.	355,982	339,464	(16,518)	(4.6) %
FRANKLIN				
1st Quarter	--	163,468	--	--
2nd Quarter	150,032	156,180	--	--
3rd Quarter	138,329	150,900	12,571	9.1%
4th Quarter	<u>155,790</u>	<u>168,422</u>	<u>12,632</u>	<u>8.1</u>
TOTAL YEAR	--	638,970	--	--
6 Months July-Dec.	294,119	319,322	25,203	8.6%
PROVIDENCE AND STOUGHTON				
1st Quarter	--	381,290	--	--
2nd Quarter	358,539	397,642	--	--
3rd Quarter	352,905	375,506	22,601	6.4%
4th Quarter	<u>397,843</u>	<u>421,793</u>	<u>23,950</u>	<u>6.0</u>
TOTAL YEAR	--	1,576,231	--	--
6 Months July-Dec.	750,748	797,299	46,551	6.2%
TOTAL SOUTHERN ROUTES				
1st Quarter	822,057	828,163	--	--
2nd Quarter	782,471	836,942	--	--
3rd Quarter	752,723	793,010	40,287	5.4%
4th Quarter	<u>829,297</u>	<u>862,249</u>	<u>32,952</u>	<u>4.0</u>
TOTAL YEAR	3,186,548	3,320,364	--	--
6 Months July-Dec.	1,582,020	1,655,259	73,239	4.6%

NOTE: Comparison to the 1st 6 months of 1977 is not possible because service did not include all the same areas and was in transition from operation by Conrail to B & M.

### III. ANALYSIS OF 1978 SERVICE PERFORMANCE

The third section of this report measures performance. The primary measurement is the percentage of Scheduled Trips Run.

The selection of that statistic was based on the assumption that the schedule is properly designed to meet the transportation needs of the riding public with maximum utilization of the MBTA's total resources. On that basis, therefore, successful management of the MBTA will mean the closest possible adherence to the schedule. We have excluded from the calculation of the percent of scheduled trips actually run the number of trips added to replace scheduled trips not run. Our reason for the exclusion is that these trips distort the picture in relation to close adherence to the planned schedule.

In addition to presentation of the percentage of scheduled trips actually run , we have presented a breakdown of the causes for scheduled trips not being run. The purpose of this breakdown is to determine to the extent possible the causes which prevent adherence to the schedule, so that management attention can be focused on these causes if they are correctable. For instance, a high percentage of Scheduled Trips Not Run because vehicles were not available strongly suggests a deficiency of performance in maintenance. A high incidence of Scheduled Trips Not Run because a crew was not available would indicate a personnel problem. However, a high percentage of Scheduled Trips Not Run because of weather is not likely to be subject to correction by management. It should be noted that while severe weather resulting in direct cancellation of a scheduled trip is included as a category in this breakdown, that bad weather conditions also contribute

to increases in vehicles not being available for a scheduled run, insufficient headway to permit a scheduled run, development of switch problems, and other miscellaneous causes for cancellation of scheduled trips.

Also the Blizzard of 1978 contributed heavily to damage of all fleets, increasing demands on maintenance operations throughout the year.

No performance measurement is meaningful unless a performance standard is applied identifying the performance level which should be achieved.

In 1977, after careful consideration and after consultation with MBTA management, we selected a performance standard of 98% of scheduled trips as the percentage which should actually be run. Our analysis of service performance in this report is based on that standard.

#### Rapid Transit Lines

Page 31 shows that of the three rapid transit lines, only the Orange Line consistently meets the performance standard of 98% of Scheduled Trips Run during 1978. Of the Scheduled Trips Not Run, the more significant causes were Headway (switch problems) which were very high in all but the second quarter, and Vehicles Not Available, which was heaviest in the 1st Quarter and improved steadily through the rest of the year. Comparison with prior years shows consistent improvement in the percent of Scheduled Trips Run but also reflects the increasing problems with Headway because of switch difficulties.

The Red Line was significantly below the performance standard of 98% in the first quarter, primarily due to vehicles not being available. For the second quarter the Red Line was slightly below the performance standard, with the predominant reasons being Headway and Vehicles Not Available. The remaining two quarters saw a decline in the performance standard with Headway problems the major cause of Scheduled Trips Not Run. Comparison with prior years shows improvement in the performance standard over 1976 but a slight decline since 1977 with the major cause for Trips Not Run in all years being Vehicles Not Available.

Because of extensive repair and maintenance work on the Blue Line throughout much of the year, it is not possible to report on performance. Bus service, which cannot be compared with usual Blue Line trips of prior years, was substituted for many trips during the second and third quarters. However, the reported 4th quarter figures show marked improvement in service performance standard over prior years.

#### Streetcar Lines

The 98% performance standard has not yet been attained by any of the streetcar lines. Page 32 showing Reservoir (Riverside, Beacon and Boston College Lines) reflects the introduction of the LRV on all these lines and the disappointing availability of vehicles. Service performance in the second quarter reached a peak of 95.8%, the highest since 1976, but then declined to 94% in the fourth quarter. In all quarters of 1978 and in prior years vehicles



not being available was the major cause of Trips Not Run.

Performance on the Arborway and Mattapan Lines reflects track improvements and the increased use of rebuilt PCC's with service performance rising from 78.8% in the 1st Quarter to 97.7% in the Third Quarter. The incidence of Vehicles Not Available as a cause for Scheduled Trips Not Run decreased dramatically throughout the year. Disabled Vehicles and Weather were the two other major causes of Scheduled Trips Not Run. Total year performance shows improvement over prior years.

#### Bus - Urban Rating Stations

Except for the 1st Quarter of 1978, performance of the bus operations from the rating stations on page 33 was consistently above the performance standard of 98%. The primary causes for Scheduled Trips Not Run at all stations was Disabled Vehicles and Vehicles Not Being Available with the exception of the Arborway where Operator Not Available was the second largest cause of Trips Not Run.

Total end of the year performance shows Cabot and Arborway operating slightly below the 98% performance standard and Bennett and Salem Street slightly above. However, it is cause for concern to note that comparison with prior years shows a gradual decrease in operating performance each year.

#### Bus - Suburban Garages

Bus operations from these garages as shown on page 34 consistently exceeded the performance standard of 98% of Scheduled Trips Run. The

The primary causes for Scheduled Trips Not Run was Disabled Vehicles. Comparison with prior year performance shows both garages consistently operating above the 98% performance standard.

#### Trackless Trolley

The trackless trolley operation on page 34 shows a remarkably high and consistent performance level during all quarters of 1978 and in prior years. The only problem of any significance seems to be in the incidence of disabled vehicles.

#### Commuter Railroad

As can be seen on page 35 the percent of total trains operated on time and the percent of equipment available in rush hour on both the Northern and the Southern routes of the Commuter Rail system improved fairly consistently during the year. Though we have not attempted to set a performance standard for the operation of commuter rail service, an average yearly performance on only 71% of total trains operated on time is less than satisfactory. New equipment in 1979 should contribute to marked improvement of both the percent of trains operated on time and of equipment available during rush hour.



1978 SUMMARY OF WEEKDAY SERVICE PERFORMANCE

RAPID TRANSIT LINES

1978 Quarters	Scheduled Trips	Scheduled Trips Run	%	Sched. Trips Not Run	Veh N/A	Causes as % of Total Trips Not Run			
						Crew N/A	D/A Veh.	Weath.	Hdwy.
1st Qtr. (excl. 6 storm days)	31,122	30,739	98.8%	383	24%	4%	0%	3%	69%
2nd Qtr.	33,758	33,708	99.9	50	16	8	0	0	16
3rd Qtr.	29,340	29,308	99.9	32	13	6	0	0	75
4th Qtr.	31,620	31,400	99.3	220	11	6	1	1	70
1978 Year Total	125,840	125,155	99.5%	685	19%	5%	0%	2%	66%
1977 Year Total	130,316	129,278	99.2%	1,038	20%	9%	5%	13%	16%
1976 Year Total	138,340	135,442	97.9%	2,898	55%	6%	5%	←	34% →
1st Qtr. (excl. 8 storm days)	41,800	37,984	90.9%	3,816	56%	1%	8%	12%	19%
2nd Qtr.	47,560	46,454	97.7	1,106	33	4	25	0	38
3rd Qtr.	45,796	44,324	96.8	1,472	15	8	23	0	42
4th Qtr.	47,864	46,105	96.3	1,759	23	9	21	0	39
1978 Year Total	183,020	174,867	95.5%	8,153	38%	4%	16%	6%	30%
1977 Year Total	195,614	187,499	95.9%	8,115	44%	3%	13%	6%	7%
1976 Year Total	201,347	189,896	94.3%	11,451	51%	1%	10%	←	38% →
1st Qtr. (excl. 7 storm days)	32,684	29,509	90.4%	3,139	15%	13%	7%	18%	18%
2nd Qtr.	NA	NA	NA	NA	NA	NA	NA	NA	NA
3rd Qtr.	NA	NA	NA	NA	NA	NA	NA	NA	NA
4th Qtr. (excl. 8 days)	30,240	29,241	96.7	999	7%	53%	18%	0%	18%
1978	--	--	--	--	--	--	--	--	--
1977 Year Total	144,130	136,074	94.4%	8,056	34%	7%	17%	2%	12%
1976 Year Total	147,345	134,345	90.8%	13,635	16%	2%	9%	←	72% →

NOTE: Because of extensive rail & electrical repairs on the Blue Line throughout most of the year bus service was substituted for many trips.

ORANGE LINE

RED LINE

BLUE LINE

1978 SUMMARY OF WEEKDAY SERVICE PERFORMANCE

STREETCAR LINES

1978 Quarters	Scheduled Trips	Scheduled Trips Run	% Scheduled Trips Run	Sched. Trips Not Run	Veh N/A	Causes as % of Total Trips Not Run			
						Crew N/A	D/A Veh.	Weath.	Hdwy. Misc.
1st Qtr. (excl. 5 storm days)	46,760	42,063	90.1%	4,697	60%	18%	7%	8%	0%
2nd Qtr.	54,472	52,208	95.8	2,264	34	44	18	2	0
3rd Qtr.	50,800	47,791	94.1	3,009	41	20	11	0	0
4th Qtr.	51,646	48,670	94.2	2,976	55	14	12	2	0
1978 Year Total	203,678	190,732	93.6%	12,946	50%	22%	11%	4%	0%
1977 Year Total	203,204	185,464½	91.3%	17,739½	92%	4%	1%	0%	0%
1976 Year Total	204,746	195,742½	95.6%	9,003½	83%	9%	4%	←	4% →
1st Qtr. (excl. 5 storm days)	21,322	16,799	78.8%	4,523	36%	3%	4%	54%	0%
2nd Qtr.	22,840	22,082	96.7	758	59	10	20	0	0
3rd Qtr.	22,442½	21,935½	97.7	507	20	20	38	0	0
4th Qtr.	23,312	22,396½	96.1	915½	10	12	21	0	0
1978 Year Total	89,916½	83,213	92.5%	6,703½	34%	6%	11%	36%	0%
1977 Year Total	91,169½	76,883	84.3	14,286½	55%	3%	5%	3%	0%
1976 Year Total	114,061½	103,210	90.5%	10,851½	73%	3%	4%	←	20% →

RESERVOIR (Riverside,  
Beacon & Boston College)

ARBORWAY &  
MATTAPAN

1978 SUMMARY OF WEEKDAY SERVICE PERFORMANCE

BUS - URBAN RATING STATIONS

1978 Quarters	Scheduled Trips	Scheduled Trips		% Scheduled Trips Run	Sched. Trips Not Run	Veh. N/A	Causes as % of Total Trips Not Run				
		Run	Trips Run				Oper. N/A	D/A Veh.	Weath.	Hdwy.	Misc.
ARBORWAY											
1st Qtr.	90,245	85,889½		95.1%	4,355½	17%	13%	10%	18%	35%	7%
2nd Qtr.	94,965½	94,217		99.2	748½	6	27	45	0	15	7
3rd Qtr.	82,994	82,383		99.3	611	5	45	42	0	0	7
4th Qtr.	92,535	90,672½		98.0	1,862½	14	14	22	0	41	9
1978 Year Total	360,739½	353,162		97.9%	7,577½	14%	17%	19%	11%	32%	7%
1977 Year Total	374,104½	367,999		98.4%	6,107½	12%	20%	20%	0%	0%	48%
1976 Year Total	334,490½	331,178		99.0%	3,312½	2%	17%	14%	67%	67%	2
CABOT											
1st Qtr.	128,868½	117,495½		97.2%	3,373	19%	17%	22%	12%	24%	6%
2nd Qtr.	132,156½	130,046½		98.4	2,110	8	29	49	0	13	1
3rd Qtr.	142,126½	139,527		98.2	2,599½	24	27	49	0	0	1
4th Qtr.	141,391	135,668		96.0	5,723	37	16	34	1	12	0
1978 Year Total	521,542½	507,737		97.4%	13,805½	26%	20%	36%	3%	13%	2%
1977 Year Total	520,915	513,947½		98.7%	6,967½	21%	31%	35%	0%	0%	13%
1976 Year Total	518,872	514,066		99.1%	4,806	5%	36%	36%	23%	23%	2
BENNETT											
1st Qtr.	56,131½	54,503½		97.0%	1,628	26%	12%	35%	7%	8%	12%
2nd Qtr.	61,433	60,401½		98.3	1,031½	24	5	52	0	11	8
3rd Qtr.	58,310	57,713½		99.0%	596½	11	18	55	1	0	15
4th Qtr.	62,775	62,042		98.8	733	26	14	37	1	5	17
1978 Year Total	238,649½	234,660½		98.3%	3,989	23%	12%	43%	3%	7%	12%
1977 Year Total	236,402	232,641		98.4%	3,761	23%	14%	42%	1%	0%	20%
1976	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
SALEM STREET											
1st Qtr.	111,232	106,853		96.1%	4,379	38%	8%	22%	1%	28%	3%
2nd Qtr.	119,592	117,812		98.5	1,780	28	11	34	0	23	4
3rd Qtr.	108,891½	107,996½		99.2	895	6	30	60	0	0	4
4th Qtr.	107,787	106,770½		99.1	1,046	5	15	37	0	42	1
1978 Year Total	447,502½	439,432		98.2%	8,070½	28%	12%	31%	1%	25%	3%
1977 Year Total	472,276	464,711		98.4%	7,565	15%	9%	40%	0%	0%	37
1976 Year Total	504,115½	498,043		98.8%	6,072½	13%	10%	34%	43%	43%	2

1978 SUMMARY OF WEEKDAY SERVICE PERFORMANCE

BUS - SUBURBAN GARAGES

1978 Quarters	Scheduled Trips	Scheduled Trips Run	% Scheduled Trips Run	Scheduled Trips Not Run	Causes as % of Total Trips				Not Run		
					Veh. N/A	Oper. N/A	D/A Veh.	Weath.	Schl.	Weath.	Misc.
1st Qtr.	36,275	35,790½	98.7%	484½	4%	16%	24%	21%	29%	2%	6%
2nd Qtr.	39,167½	38,878	99.3	289½	4	3	23	0	45	0	25
3rd Qtr.	37,174½	36,955	99.4	219½	32	9	59	0	0	0	0
4th Qtr.	38,843	38,249½	98.5	593½	30	17	30	0	0	0	23
1978 Year Total	151,460	149,873½	99.0%	1,587	17%	13%	31%	7%	17%	15%	15%
1977 Year Total	161,564	160,049	99.1%	1,515	2%	15%	16%	0%	0%	67%	67%
1976 Year Total	164,854	162,972½	98.9%	1,881½	5%	8%	12%	0%	75%	0%	0%
1st Qtr.	38,875½	38,624½	99.4%	251	1%	30%	56%	2%	3%	8%	8%
2nd Qtr.	42,103½	31,702	99.1	401½	0	13	25	0	55	0	7
3rd Qtr.	37,600	37,493½	99.7	106½	0	28	71	0	0	0	1
4th Qtr.	42,253	42,052½	99.5	200½	2	26	54	0	14	0	4
1978 Year Total	160,832	159,872½	99.4%	959½	1%	22%	45%	0%	26%	6%	6%
1977 Year Total	168,293	166,694	99.0	1,599	1%	8%	11%	0%	0%	80%	80%
1976 Year Total	177,618½	175,615½	98.9	2,003	1%	5%	10%	0%	84%	0%	0%

1st 9 MONTHS 1978 SUMMARY OF WEEKDAY SERVICE PERFORMANCE

TRACKLESS TROLLEY

1978 Quarters	Scheduled Trips	Scheduled Trips Run	% Scheduled Trips Run	Scheduled Trips Not Run	Causes as % of Total Trips				Not Run		
					Veh. N/A	Oper. N/A	D/A Veh.	Weath.	Schl.	Weath.	Misc.
1st Qtr.	18,928	18,642	98.5%	286	6%	12%	44%	22%	2%	2%	14%
2nd Qtr.	20,929	20,809½	99.4	119½	2	7	63	2	0	0	26
3rd Qtr.	19,240½	19,080½	99.2	160	0	9	74	1	0	0	16
4th Qtr.	20,956½	20,769½	99.1	186½	2	42%	31%	4	0	0	21
1978 Year Total	80,053½	79,301½	99.1%	752	3%	18%	50%	10%	1%	1%	18%
1977 Year Total	82,114	81,444½	99.2%	669½	5%	24%	49%	8%	14%	0%	0%
1976 Year Total	82,385	81,313	98.7	1,072	20%	18%	49%	0%	13%	0%	0%

COMMUTER RAILROAD - BOSTON & MAINE

1978 SUMMARY OF SERVICE PERFORMANCE

<u>NORTHERN ROUTES</u>	<u>% Total Trains Operated on Time</u>	<u>% Equipment Available in Rush Hour</u>
JANUARY	51.1%	78.7%
FEBRUARY	43.8	74.1
MARCH	58.6	71.4
APRIL	64.0	72.5
MAY	68.4	78.5
JUNE	73.1	74.4
JULY	74.9	79.5
AUGUST		
SEPTEMBER	73.3	85.2
OCTOBER	74.6	85.3
NOVEMBER	82.5	84.8
DECEMBER	87.1	85.1
YEAR TO DATE	71.1%	76.6%

<u>SOUTHERN ROUTES</u>	<u>% Total Trains Operated on Time</u>	<u>% Equipment Available in Rush Hour</u>
JANUARY	44.1%	48.4%
FEBRUARY	66.7	62.7
MARCH	72.4	63.0
APRIL	75.9	75.5
MAY	71.4	70.8
JUNE	74.6	70.6
JULY	82.7	62.2
AUGUST		
SEPTEMBER	82.1	78.8
OCTOBER	74.8	81.3
NOVEMBER	79.1	78.6
DECEMBER	83.7	77.7
YEAR TO DATE	71.5%	74.9%

NOTE: Excludes Jan. 30 - Feb. 17 because of storm conditions. Does reflect reduced base on account of 25% cut in service.



The MBTA Pass Program continued its highly successful performance and grew considerably more popular in 1978. The number of passholders increased by 42% over the 1977 total. These passengers accounted for more than 12% of the total revenue of the system. 32,067 people were using the monthly passes by the year's end.

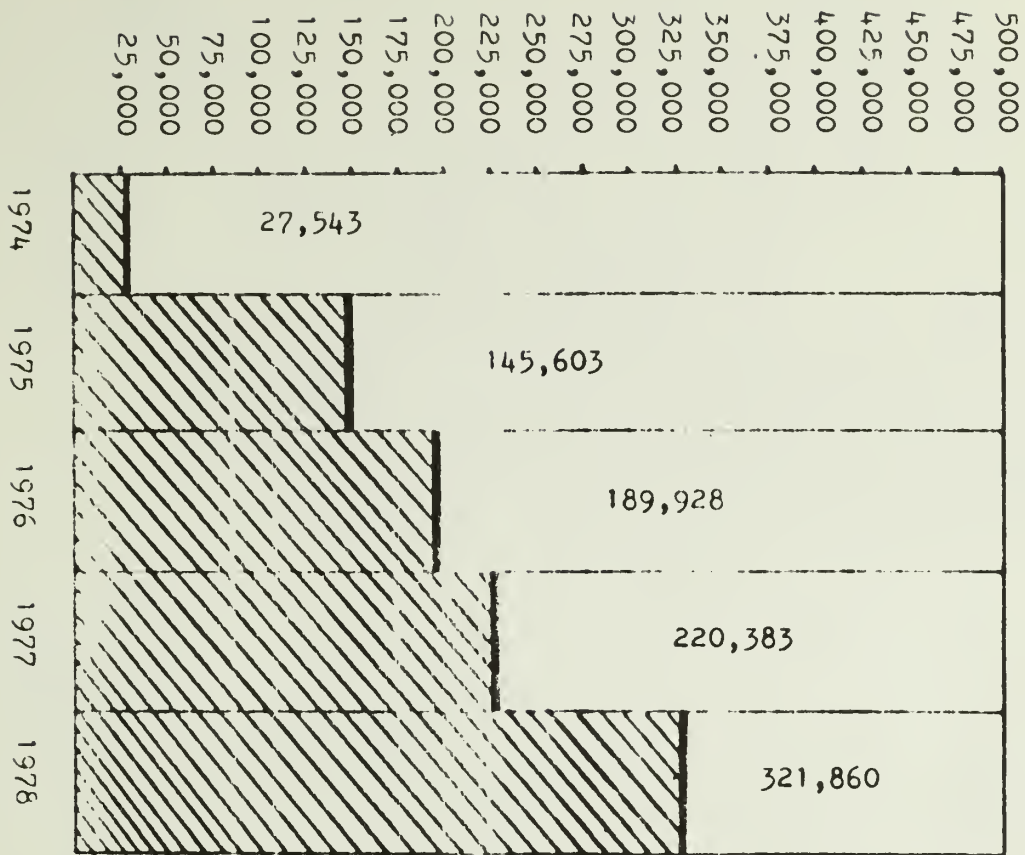
The most encouraging statistic to come out of the program is the number of new trips taken daily by passholders using transit for the first time in 1978. Approximately 4,800 new trips were generated by the pass program. This is close to 33% of all new trips generated by the MBTA in 1978.

By the end of the year there were 781 employers participating in the program. Of these nineteen paid between 50 and 100% of the monthly cost of the pass for their employees. According to MBTA estimates, 22% to 34% of the passholders in these companies were new transit users. The MBTA is encouraging more companies to offer these subsidies in hopes of attracting even more riders.

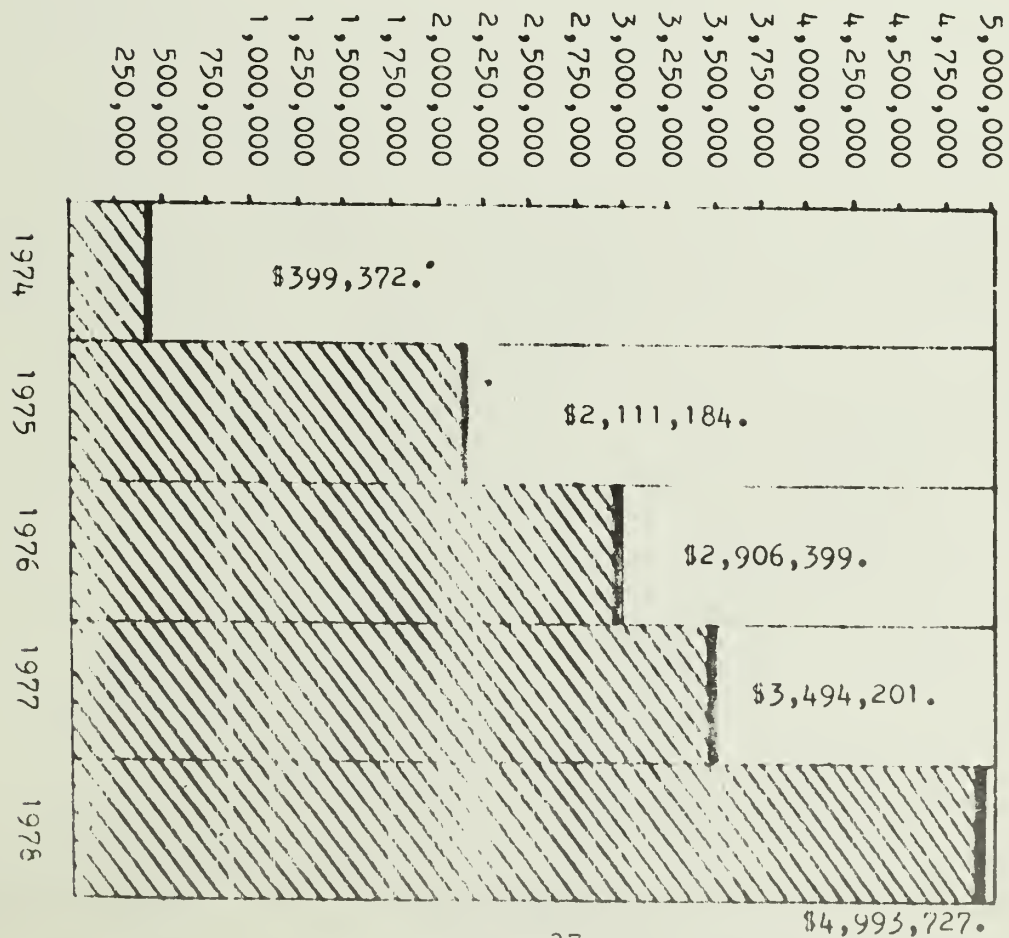
The Advisory Board applauds this particular marketing approach and urges MBTA management to continue to support it, as well as seek other means to more effectively market mass transportation.



TOTAL PASSES SOLD EACH YEAR



TOTAL PASS REVENUE GENERATED EACH YEAR









MASS. TC40.5.979 ✓

# ANALYSIS OF M.B.T.A. BUDGET & SERVICE PERFORMANCE FOR 1979

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I.

II.

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Chapter 563 of the Acts of 1964 established the Massachusetts Bay Transportation Authority by amending the General Laws by inserting therein Chapter 161A. Section 6 of Chapter 1140 of the Acts of 1973 revised the organization of the MBTA effective January 1, 1975.

The affairs of the Authority are managed by a board of five directors all appointed by the governor; one with the approval of the Advisory Board; one with the approval of the 14 cities and towns that comprised the original Metropolitan Transit Authority and one with the approval of the 65 cities and towns which were added to make up the Massachusetts Bay Transportation Authority.

The Advisory Board has the sole statutory authority for approving the annual expense budget of the Authority. It is also the responsibility of the Advisory Board and its Budget Committee\* to provide oversight and review of the spending practices of the agency. To that end we have produced this document as an annual report of the MBTA's performance during the preceeding fiscal year.

This report is divided into three sections. It begins with an overview of 1979. The second section focuses on the budget and compares 1979 performance with that of 1978 in both income and expenditure categories. The last section analyzes the service performance of the MBTA in 1979 and again compares it to 1978.

The reader should bear in mind that the MBTA's fiscal year is the calendar year. The assessment figures in this document will therefore, impact the fiscal year 1981 Cherry Sheets and budgets of the municipalities.

\* - The Advisory Board Budget Committee is now known (effective 1980) as the MBTA Advisory Board Finance Committee.



## I. 1979 OVERVIEW

1979 was a very discouraging year for MBTA budget and service performance. Unprecedented overspending caused, in part, by runaway costs and further spurred by haphazard budget scrutiny by MBTA management, forced the MBTA to submit two supplemental budget requests to the Advisory Board. The first request was approved, along with major reductions, on July 19, 1979. The second request was not approved by the Advisory Board, prompting Governor King to seize control of the MBTA.

As a result of the Authority's 1979 spending, assessments to the cities and towns are almost 14% greater than they were in 1978. In addition, the 1979 total Current Expense Budget was 13.65% higher than 1978 expenses or three times greater than the Governor's mandated 4% spending cap.

Service performance was very poor throughout the year. For example, bus operations reached all time lows in the early Fall. System-wide bus service cut-backs were announced when the Authority found it could no longer meet its own schedules.

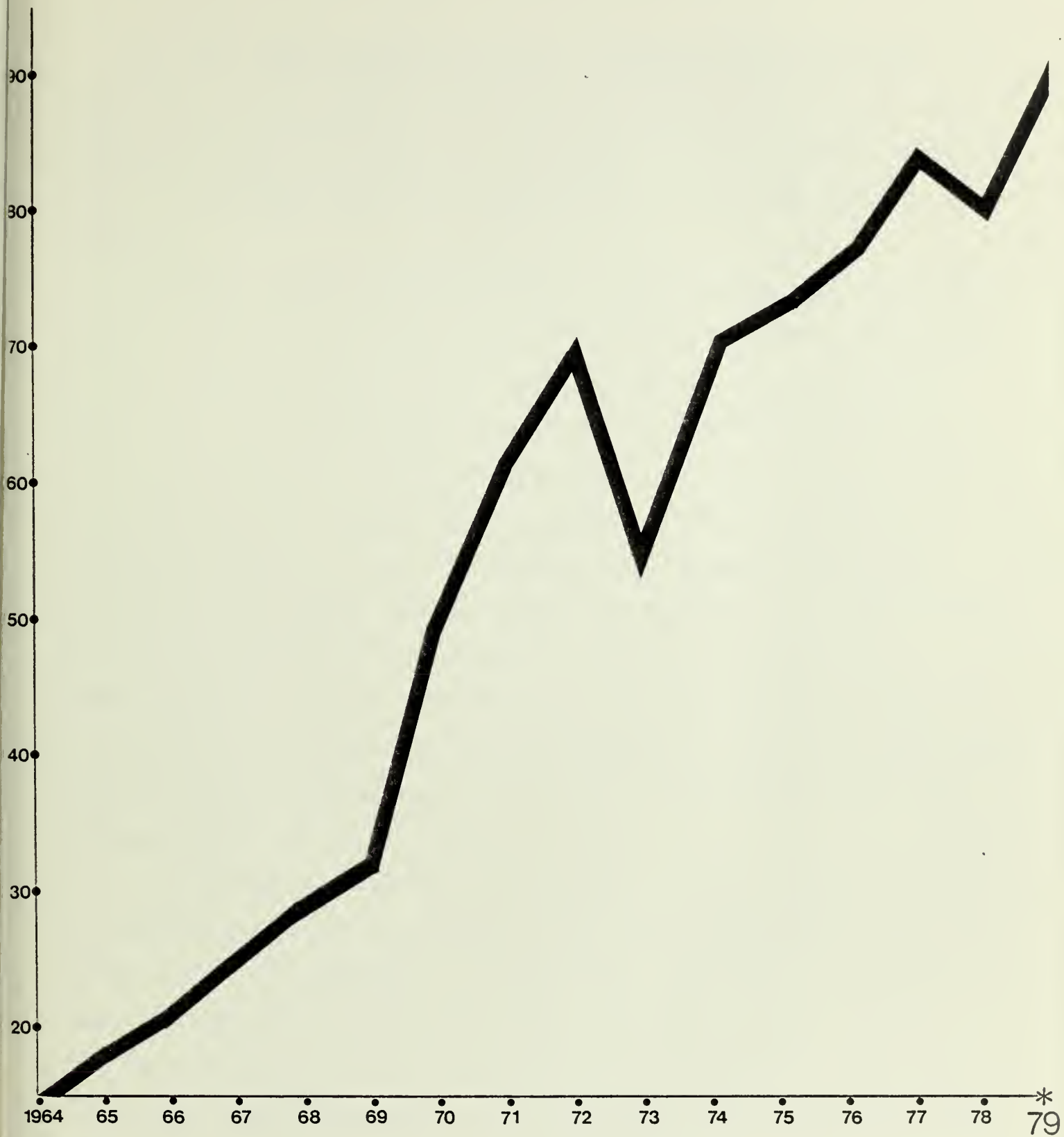
Tighter controls on MBTA spending and operating practices should be implemented immediately. All replacement hires must be scrutinized to insure that only essential positions are being filled. Absenteeism must be reduced and productivity increased. New positions should be filled with existing personnel whenever possible. Materials usage should be audited and more tightly controlled. All service contracts should be evaluated for their cost effectiveness. Without these kinds of measures, the fiscal problems that plagued the system in 1979 threaten to become even more serious in 1980.





1964 — 1979

# NET MUNICIPAL SHARE/COST OF SERVICE





## II. ANALYSIS OF 1979 BUDGET PERFORMANCE

The 1979 MBTA budget represents a spending hike of 13.65% above 1978. The increase is basically centered around wages, unemployment insurance, materials, and fuel. Income, however, posted only a 12.55% gain which was insufficient to cover the expenses incurred.

The final cost assessed to the cities and towns will be 13.87% higher than the final cost of the 1978 deficit (community breakdown of the assessments for 1978 and 1979 is appended to this report). This ended all possibilities for a trend of lowered assessments to the cities and towns. The higher figures reflect the unprecedented increase in costs, expenses for the Pope's visit, the Governor's "emergency takeover," etc. Although both revenue and operating assistance were higher than had been anticipated at the time of initial budget preparation and approval, rampant overspending by MBTA management has left the MBTA member cities and towns faced with millions of dollars of additional assessments. The Cost of Service in Excess of Income was \$222,094,374, which is \$11,869,746 above the budgeted amount of \$210,224,628.

Page 13 details the 1979 MBTA Current Expense Budget as approved by the Advisory Board in December 1978; the Supplementary Budget Request No. 1, in the amount of \$26,630,855, presented to the Advisory Board for approval in June 1979; the reductions to that request of \$15,655,333 voted by the Advisory Board on July 19, 1979; the Supplementary Budget Request No. 2 in the amount of \$15,779,606 presen-



ted for approval in November 1979; the reductions to that request in the amount of \$15,779,606 voted by the Advisory Board on December 17, 1979; and the resulting final 1979 Advisory Board approved Current Expense Budget in the amount of \$285,363,583, representing an increase of \$ 10,975,522 (8.35%) over the originally approved . budget.

Pages 14 and 15 show a comparison of actual income and expenditures for 1979 compared to the December 1978 approved budget for 1979, the actual variances over and under that budget, and the final July 19, 1979 approved budget of income and expenditures and resulting variances.

For purposes of understanding the Supplementary Budget Requests and the consequent Advisory Board action, we will concentrate on comparing variances between actual income and expenditures and the adjusted Advisory Board approved 1979 budget.

#### Income

Total actual income in 1979 was \$75,042,029 which fell short of the budgeted income of \$75,228,955 by \$186,926 (0.25%). The major contributing factor to this shortfall was the lower-than-anticipated level of reimbursement from agencies outside the district (25% lower). The increased level of revenue from the rapid transit lines is very encouraging, particularly the Blue Line, which experienced an 11% increase. Green Line revenue also posted modest increases (about 7%). In contrast, revenue from bus operations is cause for concern, decreasing almost 2%. A breakdown of revenue allocation by line is shown on page 16.





## Expenditures

The total Advisory Board approved 1979 Current Expense Budget was \$285,363,583. However, an additional \$11.8 million expense was incurred because of the Governor's "emergency takeover" of December 1979. Total actual 1979 expenses were, therefore, greater than those approved by the Advisory Board.

The aggregate of item over-expenditures totalled over 16 million dollars which was offset by underspending of line item budgets totalling, over 4 million dollars thus reducing the over-expenditure to \$ 11,772,818. The Advisory Board voted a \$15,655,333 reduction to Supplementary Budget Request No. 1 and a \$15,779,606 reduction to Supplementary Budget Request No. 2 (which represented the entire Supp. No. 2 request), and approved a final 1979 Current Expense Budget of \$285,363,583, which was \$11,772,818 less than the amount actually spent.

The budget overruns among the expense items which contributed most heavily to the total over-expenditure were an overrun of \$4,902,712 in the Wage item, \$1,905,442 in MBTA Pensions, \$565,636 in Workmen's Compensation, and \$117,363 in Unemployment Insurance.

A chart detailing MBTA wages including overtime appears on page 17. Wages accounted for 49.92% of the total MBTA expenditures budget. The final wage line was up \$8,564,937 from the previous year or 7.05%. The heaviest increases were experienced in the Fourth



Quarter when, despite a phenomenal increase in the number of disabled buses that forced the MBTA to reduce service, the Authority incurred huge overtime costs. Page 18 shows that Actual 1979 Operating Overtime costs were \$9.3 million, which was \$3.4 million or 61.78% over budget.

On page 19 is the Manpower Summary for 1979. For comparison purposes, we have included the figures from the previous three years as well. Permanent Operating Employees decreased by just under 1%. The four year analysis shows a decrease in Permanent Operating Employees of 1.32%.

Other over-expenditures needing further classification are those in the Materials Department and in the Commuter Railroad Subsidy lines.

#### Materials and Other Items (Services)

The over-expenditure of \$2,836,272 is unexplained. In the last month of 1979, the Authority spent double what it spent in November despite a prior (October) reconciliation of the books on this line item.

#### Commuter Railroad Subsidy

The Commuter Rail over-expenditure of \$5,249,442 is due, in part, to a wage settlement between Boston & Maine Corporation (operator of the Commuter Rail system) employees' unions and the B&M Trustees. This wage settlement added almost \$2 million to the gross costs.

Pages 20 - 23 show Commuter Railroad ridership and revenue. It must be noted that revenue from ridership does not appear as income since, by contract, it is applied directly to B&M operating costs.



Another extremely significant effect of the repetitive post-expenditure submission of Supplemental Budget Requests was the dramatic emphasis placed on the need for more timely communication flow between the Advisory Board and MBTA management. Corrective action was immediately taken by the Advisory Board after the submission, in 1978, of the first Supplementary Budget Request since 1975. This action tightens the transfer of funds procedures which MBTA management had been following in accordance with the 1975 Advisory Board Transfer of Funds Vote. By way of an amended vote cast at the March 5, 1979 Advisory Board meeting, the following stipulations were put into effect:

1. All transfers must be submitted in writing to the Budget (Finance) Committee, must be signed by the Chairman and Chief Executive Officer, and must state the specific reasons for the transfer and the date for implementation.
2. Transfer amounts for each line item are calculated on a cumulative basis and as a percent of the original Advisory Board approved line item budget.
3. Budget (Finance) Committee approval is required for:
  - transfers of more than 5% but less than 15% of an approved line item budget;
  - transfers of more than 15% of approved line item budgets under \$500,000.
4. Full Advisory Board approval is required for transfers amounting to more than 15% of an approved line item budget of or greater than \$500,000.

In addition, the Advisory Board can, by vote, restrict transfers out of a line item containing a priority program.





MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

COMPARATIVE ANALYSIS OF THE NET COST OF SERVICE, INTEREST CHARGED BY STATE TREASURER, AND  
BOSTON METROPOLITAN DISTRICT EXPENSES FOR THE CALENDAR YEARS 1978 AND 1979 AND THE RELATED  
IMPACT ON THE FISCAL YEARS 1980 AND 1981 TAX RATES

Cities and Towns	Total Actual 1978 Assessment \$80,644,651.74.	Load On Fiscal Year 1980 Tax Rate*	Fiscal Year 1980		Total Estimated 1979 Assessment \$91,833,271.41	Estimated Load in Fiscal Year 1981 Tax Rate**
			Tax Rate			
Arlington	\$1,907,307.53	5.28	81.00		\$2,164,849.15	5.98
Ashland	127,231.12	1.08	45.00		143,857.05	1.15
Bedford	185,047.08	2.04	95.00		203,053.96	2.13
Belmont	942,774.50	3.60	67.00		1,057,059.32	4.02
Beverly	498,436.44	2.06	83.10		560,721.95	2.31
Boston	33,855,954.18	19.63	252.90		38,955,721.69	22.41
Braintree	575,442.82	1.04	43.75		652,965.59	1.17
Brookline	2,728,799.22	6.01	98.00		3,215,930.11	7.04
Burlington	334,220.48	1.28	69.00		386,339.57	1.42
Cambridge	4,443,289.09	13.00	188.40		5,109,222.08	14.92
Canton	220,885.33	1.15	58.00		254,205.23	1.28
Chelsea	855,104.81	14.67	238.00		976,073.68	16.64
Cohasset	82,995.10	.83	49.00		93,718.67	.93
Concord	189,158.40	.52	35.20		213,422.83	.58
Danvers	365,928.75	1.81	74.00		410,425.41	2.03
Dedham	430,908.95	1.63	59.80		488,549.46	1.82
Dover	63,423.79	.44	26.75		71,697.26	.49
Duxbury	85,455.00	.39	37.80		96,446.02	.43
Everett	1,334,140.70	6.29	141.20		1,506,334.33	7.02
Framingham	732,005.49	1.29	67.00		826,242.46	1.42
Hamilton	98,434.77	.89	29.00		110,467.89	.97
Hanover	133,071.03	.70	34.50		150,377.28	.79
Hingham	279,091.01	1.71	77.00		315,160.76	1.83
Holbrook	203,517.65	3.25	89.50		227,110.86	3.60
Hull	135,662.19	1.27	63.40		153,771.14	1.44
Lexington	527,293.11	2.00	87.60		579,422.44	2.16
Lincoln	122,512.85	.81	19.60		139,072.57	.78
Lynn	1,282,284.89	4.74	166.50		1,424,781.80	5.25
Lynnfield	154,146.18	.67	26.60		174,277.56	.74
Malden	1,775,956.28	14.99	199.30		1,999,035.47	16.70
Manchester	61,334.68	.46	28.50		68,080.91	.51
Marblehead	324,182.68	1.52	63.00		366,100.23	1.71
Marshfield	191,413.70	1.47	91.00		216,229.55	1.65
Maynard	123,781.95	2.09	90.00		139,845.78	2.32
Medfield	115,482.57	1.50	73.10		130,385.91	1.65
Medford	2,174,927.53	16.31	215.00		2,488,381.78	18.65

Year	Age	Rate	Year	Age	Rate
1978	64	65.1%	1980	64	65.1%
1978	65	65.1%	1980	65	65.1%
1978	66	65.1%	1980	66	65.1%
1978	67	65.1%	1980	67	65.1%
1978	68	65.1%	1980	68	65.1%
1978	69	65.1%	1980	69	65.1%
1978	70	65.1%	1980	70	65.1%
1978	71	65.1%	1980	71	65.1%
1978	72	65.1%	1980	72	65.1%
1978	73	65.1%	1980	73	65.1%
1978	74	65.1%	1980	74	65.1%
1978	75	65.1%	1980	75	65.1%
1978	76	65.1%	1980	76	65.1%
1978	77	65.1%	1980	77	65.1%
1978	78	65.1%	1980	78	65.1%
1978	79	65.1%	1980	79	65.1%
1978	80	65.1%	1980	80	65.1%
1978	81	65.1%	1980	81	65.1%
1978	82	65.1%	1980	82	65.1%
1978	83	65.1%	1980	83	65.1%
1978	84	65.1%	1980	84	65.1%
1978	85	65.1%	1980	85	65.1%
1978	86	65.1%	1980	86	65.1%
1978	87	65.1%	1980	87	65.1%
1978	88	65.1%	1980	88	65.1%
1978	89	65.1%	1980	89	65.1%
1978	90	65.1%	1980	90	65.1%
1978	91	65.1%	1980	91	65.1%
1978	92	65.1%	1980	92	65.1%
1978	93	65.1%	1980	93	65.1%
1978	94	65.1%	1980	94	65.1%
1978	95	65.1%	1980	95	65.1%
1978	96	65.1%	1980	96	65.1%
1978	97	65.1%	1980	97	65.1%
1978	98	65.1%	1980	98	65.1%
1978	99	65.1%	1980	99	65.1%
1978	100	65.1%	1980	100	65.1%

Cities and Towns	Total Actual 1978 Assessment \$80,644,651.74	Fiscal Year 1980 Tax Rate*	Fiscal Year		Total Estimated 1979 Assessment \$91,833,271.41	Estimated Load in Fiscal Year 1981 Tax Rate**	
			1980	Tax Rate			
Melrose	\$ 571,065.20	2.38	68.80		\$ 634,992.54	2.63	
Middleton	53,692.65	.79	31.80		60,672.19	.85	
Millis	72,813.48	1.24	58.00		82,263.62	1.37	
Milton	866,608.37	10.94	193.40		959,809.73	12.19	
Nahant	91,834.82	5.23	126.00		103,348.38	5.86	
Natick	407,521.75	2.09	103.00		460,712.74	2.38	
Needham	421,611.69	1.28	57.60		471,672.92	1.42	
Newton	2,707,871.15	6.75	169.20		3,015,861.02	7.41	
Norfolk	55,875.58	1.35	57.30		63,840.19	1.46	
No. Reading	172,029.96	2.38	81.00		194,582.18	2.63	
Norwell	114,375.33	1.04	52.00		129,331.98	1.15	
Norwood	449,383.05	1.42	48.00		511,604.14	1.59	
Peabody	639,117.48	1.85	78.50		722,736.07	2.07	
Pembroke	158,637.60	2.65	32.85		179,353.50	.95	
Quincy	2,205,696.14	7.86	224.00		2,409,807.75	8.65	
Randolph	467,364.24	3.01	85.00		528,425.76	3.36	
Reading	359,317.01	1.25	40.00		396,883.94	1.37	
Revere	1,645,967.86	16.53	227.60		1,871,392.35	18.76	
Rockland	195,694.65	2.58	88.00		221,050.20	2.87	
Salem	565,380.31	4.71	202.00		608,522.15	5.07	
Saugus	482,358.60	2.03	55.90		545,947.86	2.26	
Scituate	208,620.39	1.66	91.00		235,626.06	1.88	
Sharon	194,441.83	1.29	56.50		224,352.34	1.44	
Sherborn	46,116.71	.50	37.00		52,138.82	.55	
Somerville	3,028,262.19	21.62	245.80		3,440,367.52	24.68	
Stoneham	306,287.23	1.14	43.25		346,377.94	1.28	
Sudbury	176,614.53	.99	57.50		199,571.17	1.07	
Swampscott	242,073.50	2.06	81.50		280,479.94	2.34	
Topsfield	69,647.57	.68	29.30		78,712.55	.74	
Wakefield	405,969.27	4.84	173.00		453,246.48	5.35	
Walpole	239,717.05	1.63	69.80		271,368.49	1.80	
Waltham	787,092.10	1.49	63.00		877,094.93	1.62	
Watertown	1,196,009.43	12.16	224.00		1,336,204.44	13.60	
Wayland	185,253.03	.85	44.60		209,402.99	.94	
Wellesley	359,661.61	1.20	30.50		406,406.77	.61	
Wenham	51,288.99	.73	27.00		57,955.43	.85	
Weston	143,925.91	.70	48.50		162,998.66	.78	
Westwood	207,317.11	1.33	66.80		233,942.49	1.47	

	Total Actual Fiscal Year 1978 Assessment	Fiscal Year 1980 Tax	Total Estimated 1979 Assessment	Estimated Total in Fiscal Year 1981
Gifford and				

Cities and Towns	Load On		Fiscal Year		Estimated		Estimated Load	
	Total Actual	Fiscal Year	1980 Tax	1980	1979 Assessment	1981	Tax Rate**	
	1978 Assessment	Rate*		Tax Rate	\$91,833,271.41			
	\$80,644,651.74							
Weymouth	\$902,921.40	2.22	79.20		\$1,015,464.31		2.73	
Wilmington	217,343.45	1.42	77.00		245,076.93		1.60	
Winchester	346,791.77	1.69	74.80		386,574.90		1.87	
Winthrop	397,681.25	2.20	36.60		448,910.48		2.48	
Woburn	565,796.65	1.09	40.20		628,648.81		1.15	
	\$80,644,651.74				\$91,833,271.41			

\* Based on January 1, 1978 Assessed Valuations

\*\* Based on January 1, 1979 Assessed Valuations

# S U M M A R Y

	1978	1979
Net Assessable Cost of Service	\$78,048,972.03	\$82,067,271.41
Interest Charged by State Treasurer on Temporary Borrowings	6,579,679.71	9,750,000.00
Expenses of Boston Metropolitan District	16,000.00	16,000.00
TOTAL	\$84,644,651.74	\$91,833,271.41





M.B.T.A. DEFICIT HISTORY AND PROJECTION

(\$ 000)

	1973	1974	1975	1976	1977	1978	Approved 1979	Actual 1979	Budget 1980
Total Current Expenses	\$ 167,508	\$ 193,750	\$ 215,174	\$ 224,176	\$ 241,198	\$ 266,590	\$ 285,363	\$ 297,136	\$ 302,130
State Treasurer's Charges	3,240	5,559	8,437	8,502	5,168	6,580	9,750	9,750	14,000
Total Cost	170,748	199,309	223,611	232,678	246,366	273,170	295,113	306,886	316,130
Total Income	60,600	64,736	65,824	60,449	60,596	67,670	75,229	75,042	78,886
Federal Operating Assistance	---	6,241	11,173	16,869	16,862	26,628	27,422	27,422	30,850
Total Deficit	110,148	128,332	146,614	155,360	168,908	178,872	192,462	204,422	206,394
Deficit Increase Over Previous Year Dollars	15,767	18,184	18,282	8,746	13,548	9,964	13,590	25,550	11,932
Percent	16.7%	16.5%	14.2%	6.0%	8.7%	5.9%	7.6%	14.3%	6.2%
State Share of Deficit	54,566*	58,553	73,474	77,938	84,750	98,282**	106,515**	112,589**	115,908**
Local Share of Deficit	55,582*	69,669	73,140	77,423	84,158	80,590**	85,947**	91,833**	90,486**
% Increase Over Previous Year	(26.4)%*	25.5%	4.8%	5.9%	8.7%	(4.2)%	6.7%	13.9%	5.3%

\* 1st State pick-up of 50% of deficit.

\*\* Based on Governor's commitment to Advisory Board for State pick-up of 50% of operating deficit plus 90% Debt Service (Letter of Dec. 14, 1977).

o 1979 and 1980 Approved Current Expense Budget format includes Gross Cost of Commuter Rail. In prior years, assistance was netted out of this item.

NOTE: The 1980 deficit projection is based upon funding \$ 1.6 million of 1980 Supplementary Budget Request No. 1, but no additional revenues from a fare hike.



M.B.T.A. CURRENT EXPENSE BUDGET  
FOR CALENDAR YEAR 1979

	Voted 12/1978 1979 Budget	6/1979 1979 Supp. Bud. Req. No. 1	7/19/79 Ad. Bd. Reductions	7/19/79 Adjusted Ad. Bd. Appr. Budget	11/1979 1979 Supp. Bug. Req. No. 2	12/17/79 Ad. Bd. Reduc- tions	12/17/79 Adjusted Ad. Bd. Appr. Budget
<b>OPERATING WAGES &amp; FRINGE BENEFITS</b>							
1. Wages	\$ 121,774,865	\$ 9,439,266	\$ (6,395,694)	\$ 124,818,437	\$ 5,676,493	\$ 5,676,493	\$ 124,818,437
2. MBTA Pensions	16,555,221	856,894	(487,147)	16,924,968	2,029,704	2,029,704	16,924,968
3. Social Security	8,100,000	- 0 -	- 0 -	8,100,000	400,000	400,000	8,100,000
4. Workmen's Comp.	1,575,000	1,498,000	(862,268)	2,246,732	565,715	565,715	2,246,732
5. Acc. & Sick Ins.	434,757	13,543	(13,543)	434,757	18,996	18,996	434,757
6. Group Life Ins.	750,203	48,297	(48,297)	750,203	17,908	17,908	750,203
7. Bl.Cross/Bl. Shield	13,055,287	444,713	(98,067)	13,401,933	124,195	124,195	13,401,933
8. Unemploy. Ins.	150,000	- 0 -	- 0 -	150,000	130,000	130,000	150,000
9. Uniform & Workcl.	468,717	74,020	(74,020)	468,717	104,563	104,563	468,717
Less:	(4,750,000)	- 0 -	- 0 -	(4,750,000)	(500,000)	(500,000)	(4,750,000)
<b>TOTAL OPERATING WAGES &amp; FRINGE BENEFITS</b>	<b>158,114,050</b>	<b>12,374,733</b>	<b>(7,943,036)</b>	<b>162,545,747</b>	<b>8,450,574</b>	<b>8,450,574</b>	<b>162,545,747</b>
10. Materials and Other Items	20,675,113	4,372,363	(3,128,475)	21,919,001	3,832,263	3,832,263	21,919,001
11. Inj. & Damages	2,517,860	- 0 -	- 0 -	2,517,860	- 0 -	- 0 -	2,517,860
12. Int. on Unf. Debt	10,269,267	1,679,699	- 0 -	11,948,966	(141,466)	(141,466)	11,948,966
13. Fuel	14,250,733	4,540,000	(2,650,928)	16,139,805	418,979	418,979	16,139,805
14. Taxes (Other than Incl. Above)	830,000	- 0 -	- 0 -	830,000	10,540	10,540	830,000
15. Railroad Commuter Subsidy	29,637,300	5,043,346	(1,932,894)	32,747,752	3,285,275	3,285,275	32,747,754
16. Bus Carrier Subs.	1,363,952	- 0 -	- 0 -	(1,383,952)	(193,559)	(193,599)	1,363,952
<b>TOTAL OPERATING EXPENSES AND TAXES</b>	<b>237,658,275</b>	<b>28,010,141</b>	<b>(15,655,333)</b>	<b>250,013,083</b>	<b>15,779,606</b>	<b>15,779,606</b>	<b>250,013,083</b>
<b>SCHEDULE OF FIXED CHARGES</b>							
17. Int. on Funded Debt (M. T.A.)	3,861,844	- 0 -	- 0 -	3,861,844	- 0 -	- 0 -	3,861,844
18. Int. on Funded Debt (M.B.T.A.)	20,614,375	(1,379,286)	- 0 -	19,235,089	- 0 -	- 0 -	19,235,089
19. Payment on Funded Debt (M. T.A.)	2,824,259	- 0 -	- 0 -	2,824,259	- 0 -	- 0 -	2,824,259
20. Payment on Funded Debt (M.B.T.A.)	9,335,000	- 0 -	- 0 -	9,335,000	- 0 -	- 0 -	9,335,000
21. Cambridge Subway Rental (M. T.A.)	5,408	- 0 -	- 0 -	5,408	- 0 -	- 0 -	5,408
22. Bank Service Charges (M.B.T.A.)	88,900	- 0 -	- 0 -	88,900	- 0 -	- 0 -	88,900
<b>TOTAL FIXED CHARGES</b>	<b>36,729,786</b>	<b>(1,379,286)</b>	<b>- 0 -</b>	<b>35,350,500</b>	<b>- 0 -</b>	<b>- 0 -</b>	<b>35,350,500</b>
<b>TOTAL CURRENT EXPENSES</b>	<b>\$ 274,388,061</b>	<b>\$ 26,630,855</b>	<b>\$ (15,655,333)</b>	<b>\$ 285,363,583</b>	<b>\$ 15,779,606</b>	<b>\$ (15,779,606)</b>	<b>\$ 285,363,583</b>



COMPARISON 1979 M.B.T.A. NET COST OF SERVICE  
ACTUAL TO BUDGET

	12/1978 Approved Budget 1979	12/31/79 Actual 1979	Variance Actual to Orig. Budget	%	7/19/79 Approved Budget 1979	Variance Actual to Amended Budget	%
<b>INCOME</b>							
Revenue from Transportation	\$ 57,384,100	\$ 56,727,494	\$ (1,106,607)	(1.91)	\$ 56,834,100	\$ (106,607)	(0.19)
Revenue from Other Rwy. Operations	1,975,500	2,263,665	288,164	14.58	1,975,500	288,164	14.58
Non-operating Income	6,925,000	13,650,718	6,725,718	97.12	13,351,623	299,095	2.19
Gas & Diesel Taxes	487,000	431,431	(5,569)	(1.29)	431,000	431	0.10
Reimbursable	2,636,732	1,968,721	(668,011)	(25.33)	2,636,732	(668,011)	(25.33)
Reimbursement - Outside District	69,408,332	75,042,029	5,633,697	8.12	75,228,955	(186,926)	(0.25)
<b>TOTAL INCOME</b>							
<b>OPERATING WAGES &amp; FRINGE BENEFITS</b>							
Wages	121,774,865	129,721,149	7,946,334	6.52	124,818,437	4,902,712	3.93
M.B.T.A. Pensions	16,555,221	18,830,410	2,275,189	13.74	16,924,968	1,905,442	11.26
Social Security	8,100,000	8,409,994	309,994	3.82	8,100,000	309,994	3.83
Workmen's Compensation	1,575,000	2,812,368	1,237,368	78.56	2,246,732	565,636	25.17
Accident & Sickness Ins.	437,757	431,677	(3,081)	(0.70)	434,757	(3,081)	(0.70)
Group Life Insurance	750,203	670,677	(79,526)	(10.60)	750,203	(79,526)	(10.60)
Blue Cross/Blue Shield	13,055,287	13,900,031	534,743	4.09	13,401,933	188,047	1.40
Unemployment Insurance	150,000	267,363	117,362	78.24	150,000	117,362	78.24
Uniform & Workclothes	468,717	541,660	72,943	15.56	468,717	72,943	15.56
Less: Fringe Benefits Cost	(4,750,000)	(5,753,121)	(1,003,121)	(21.11)	(4,750,000)	(1,003,121)	(21.11)
Capitalized Credit							
<b>TOTAL OPERATING WAGES AND FRINGE BENEFITS</b>	158,117,050	169,522,258	11,405,208	7.21	162,545,747	6,976,508	4.29
Materials and Other Items	20,675,113	24,755,274	4,080,160	19.73	21,919,001	2,836,272	12.94
Injuries & Damages	2,517,860	2,517,339	(521)	(0.02)	2,517,860	(521)	(0.02)
Interest on Unfunded Debt	10,269,267	11,795,984	1,526,716	14.86	11,948,966	(152,983)	(12.80)
Fuel	14,250,733	16,208,764	1,958,031	13.73	16,139,805	68,959	0.43
Taxes (Other than included Above)	830,000	864,974	34,973	4.21	830,000	34,973	4.21
Railroad Commuter Subsidy	29,637,300	37,997,194	8,359,894	28.20	32,747,752	5,249,442	16.02
Bus Carrier Subsidy	1,363,959	1,112,288	(251,665)	(18.45)	1,363,952	(251,665)	(18.45)
Railroad Commuter Reimbursed Cost	- 0 -	(2,800,000)	(2,800,000)	(100.00)		(2,800,000)	(100.00)
<b>TOTAL OPERATING EXPENSES &amp; TAXES</b>	237,661,282	261,974,072	24,312,790	10.23	250,013,083	11,960,985	4.78





FIXED CHARGES:

Interest on Funded Debt (M.T.A.)	3,861,844	3,686,264	(175,580)	(4.54)	3,861,844	(175,580)	(4.54)
Interest on Funded Debt (M.B.T.A.)	20,614,375	19,235,045	(1,379,330)	(6.69)	19,235,089	(44)	(0.47)
Payment on Funded Debt (M.T.A.)	2,824,259	2,824,259	- 0 -	- 0 -	2,824,259	- 0 -	- 0 -
Payment on Funded Debt (M.B.T.A.)	9,335,000	9,331,172	(3,828)	(0.04)	9,335,000	(3,828)	(0.04)
Cambridge Subway Rental (M.T.A.)	5,408	5,408	- 0 -	- 0 -	5,408	- 0 -	- 0 -
Miscellaneous Debits (M.B.T.A.)	- 0 -	30,429	30,429	100.00	- 0 -	30,429	100.00
Bank Service Charges (M.B.T.A.)	88,900	49,752	(39,148)	(44.03)	88,900	(39,148)	(44.03)
TOTAL FIXED CHARGES	36,729,786	35,162,329	(1,576,457)	(4.26)	35,350,500	(188,171)	(0.53)
TOTAL CURRENT EXPENSES	274,391,068	297,136,401	22,745,333	8.29	285,363,583	11,772,818	4.09
COST OF SERVICE IN EXCESS OF INCOME	204,982,736	222,094,374	17,111,638	8.35	210,224,628	11,869,746	5.69

LESS:

State Fin Contr. Assist (M.T.A.)	3,000,000	3,000,000	- 0 -	- 0 -	3,000,000	- 0 -	- 0 -
State Fin Contr. Assist (M.B.T.A.)	25,081,375	23,840,018	(1,241,357)	(4.95)	23,840,000	- 0 -	- 0 -
State Fin Contr. Assist (R.R.)	980,842	2,419,692	1,438,850	146.69	1,223,379	1,196,313	97.79
House Bill #1 Pending Approval (R.B.T.A.)	- - -	83,345,000	- - -	- - -	- - -	- - -	- - -
FEDERAL OPERATING ASSISTANCE	20,006,518	27,422,397	7,415,849	37.07	27,422,397	- 0 -	- 0 -
TOTAL CONTRACT ASSISTANCE	49,068,735	140,027,107	90,958,372	185.37	55,485,794	84,541,313	152.37
NET ASSESSABLE COST OF SERVICE-LOSS	155,914,001	82,067,267	(73,467,340)	(47.36)	154,738,852	(72,671,555)	(46.96)

STATE TREASURER'S INTEREST CHARGES

STATE TREASURER'S INTEREST CHARGES	9,750,000	9,750,000	- 0 -	- 0 -	9,750,000	- 0 -	- 0 -
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NET OPERATING DEFICIT

NET OPERATING DEFICIT	165,664,001	91,833,267	(73,467,340)	(44.57)	164,488,852	(72,671,555)	(44.17)
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STATE SHARE OF OPERATING DEFICIT

STATE SHARE OF OPERATING DEFICIT	83,202,000	- - -	- - -	- - -	78,542,000	- - -	- - -
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LOCAL SHARE OF OPERATING DEFICIT

LOCAL SHARE OF OPERATING DEFICIT	\$ 82,462,001	\$ 91,833,267	\$ 9,371,266	(11.36)	\$ 85,946,849	\$ 5,886,418	6.41
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ALLOCATION OF  
REVENUE FROM TRANSPORTATION BY LINE

	<u>1978</u>	<u>1979</u>	\$ <u>Increase/Decrease</u>	% <u>Increase/Decrease</u>
ORANGE LINE	\$ 6,876,888	\$ 7,129,616	\$ 252,728	3.68
BLUE LINE	1,482,024	1,646,788	164,764	11.12
RED LINE:				
Camb.-Dorchester	6,065,483	6,610,590	545,107	8.99
South Shore	<u>2,795,401</u>	<u>2,989,258</u>	<u>193,857</u>	<u>6.93</u>
TOTAL RED LINE	8,860,884	9,599,848	738,964	8.34
GREEN LINE:				
Reservoir-Riverside	4,912,386	4,912,467	81	0.01
Arborway*	<u>1,039,664</u>	<u>1,506,853</u>	<u>467,189</u>	<u>44.94</u>
Total Surface	5,952,050	6,419,320	467,270	7.85
Green Line Central				
Subway	<u>6,619,858</u>	<u>7,086,183</u>	<u>466,345</u>	<u>7.04</u>
TOTAL GREEN LINE	12,571,908	13,505,503	933,595	7.43
TRACKLESS TROLLEY	1,374,022	1,332,677	(41,345)	(3.01)
BUS:				
Cabot-Albany	7,661,248	8,024,361	363,113	4.73
Arborway	3,871,634	3,377,268	(494,366)	(12.76)
Somerville-				
Arlington Heights	3,444,827	3,486,201	41,374	1.20
Salem St.-Charlestown				
& Eagle	5,156,306	4,747,767	(408,539)	(7.92)
Lynn	1,772,908	1,731,711	(41,197)	(2.32)
Quincy	<u>1,696,427</u>	<u>1,784,764</u>	<u>88,337</u>	<u>5.20</u>
TOTAL BUS	23,603,350	23,152,072	(451,278)	(1.91)
SPECIAL BUS	427,036	361,170	(65,866)	(15.42)
Farebox Revenue	50,016,281	48,422,288	(1,593,993)	(3.19)
Pass Program Revenue	4,752,615	7,944,036	3,191,421	67.15
Special Bus Ticket				
Sales	<u>427,036</u>	<u>361,170</u>	<u>(65,866)</u>	<u>(15.42)</u>
TOTAL SYSTEM	55,195,932	56,727,494	1,531,562	2.77

\*includes Mattapan Streetcar revenue



M.B.T.A. OPERATING WAGES INCLUDING OVERTIME  
(Source: MBTA Monthly Reports)

	<u>1978</u>	<u>1979</u>	<u>\$</u> <u>Increase/(Decrease)</u>	<u>%</u>
JAN	\$ 10,066,370	\$ 9,687,313	\$ (379,057)	(3.77)
FEB	10,781,501	9,767,728	(1,013,773)	(9.40)
MAR	11,154,923	11,919,593	764,670	6.86
FIRST QUARTER	32,002,793	31,377,716	(625,077)	(1.95)
APR	8,983,136	9,662,449	679,313	7.56
MAY	8,717,168	9,378,810	661,642	7.59
JUN	11,602,594	12,365,985	763,391	6.58
SECOND QUARTER	29,302,898	31,407,234	2,104,336	7.18
FIRST HALF	61,289,742	62,799,466	1,509,724	2.46
JUL	8,848,800	9,991,847	1,143,047	12.92
AUG	8,818,894	9,425,277	605,383	6.88
SEP	11,411,118	12,180,213	769,095	6.74
THIRD QUARTER	29,078,812	31,597,337	2,517,525	8.66
9 MONTH TOTAL	90,368,554	94,396,803	4,028,249	4.46
OCT	9,060,591	10,561,981	1,501,390	16.57
NOV	9,436,329	10,374,776	938,447	9.95
DEC	12,560,386	14,387,640	1,827,254	14.55
FOURTH QUARTER	31,057,306	35,324,397	4,267,091	13.74
FULL YEAR TOTAL	121,425,859	129,721,199	8,295,340	6.83





M.B.T.A. OPERATING OVERTIME  
(Source: LAB 142)

	<u>1978</u>	<u>1979</u>	<u>\$</u> <u>Change</u>	<u>%</u> <u>Over/</u> <u>(Under)</u>
JAN	\$ 1,504,348	\$ 806,248	\$ (698,100)	(46.41)
FEB	2,233,614	830,203	(1,403,411)	(62.83)
MAR	<u>993,898</u>	<u>1,025,322</u>	<u>31,424</u>	<u>3.16</u>
FIRST QUARTER	4,731,860	2,661,773	(2,070,087)	(43.75)
APR	477,159	643,592	166,433	34.88
MAY	536,752	273,835	(262,917)	(48.98)
JUN	<u>700,249</u>	<u>728,733</u>	<u>28,484</u>	<u>4.07</u>
SECOND QUARTER	1,714,160	1,646,160	(68,000)	(3.97)
FIRST HALF	6,446,020	4,307,933	(2,138,087)	(33.17)
JUL	482,808	627,615	144,807	29.99
AUG	554,346	742,475	188,129	33.94
SEP	<u>648,970</u>	<u>553,678</u>	<u>(95,292)</u>	<u>(14.63)</u>
THIRD QUARTER	1,686,124	1,923,768	237,644	14.09
9 MONTH TOTAL	8,132,144	6,231,701	(1,900,443)	(23.37)
OCT	453,103	885,052	431,949	95.33
NOV	517,056	908,410	391,354	75.69
DEC	<u>1,340,823</u>	<u>989,752</u>	<u>(351,071)</u>	<u>(26.19)</u>
FOURTH QUARTER	2,310,982	2,783,214	472,232	20.43
FULL YEAR	\$ 10,443,126	\$ 9,014,149	\$ (1,428,977)	(13.68)

1979 Budget Allocation = \$ 5,571,723

Actual 1979 was over budget by \$ 3,442,426 or 61.78%

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M.B.T.A. MANPOWER SUMMARY  
1976 - 1979 (End of Year)

<u>MANPOWER</u>	<u>Actual 1976</u>	<u>Actual 1977</u>	<u>Actual 1978</u>	<u>Actual 1979</u>
Total Roll	6,285	6,341	6,597	6,674
Temporary	107	69	122	109
Capital	233	387	555	699
Permanent Operating	5,945	5,885	5,920	5,866

M.B.T.A. MANPOWER CHANGES  
1976 - 1979 (End of Year)

<u>Manpower</u>	<u>Actual 1976</u>	<u>Actual 1977</u>	<u>Actual 1978</u>	<u>Actual 1979</u>
New Hires	310	433	783	535
Attritions	(417)	(364)	(532)	(445)
Net Change	(107)	69	251	90
Permanent Employees	6,178	6,272	6,475	6,565

SOURCE: MBTA Payroll Office

JANU  
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COMMUTER RAILROAD PASSENGER REVENUE  
BOSTON & MAINE - NORTHERN ROUTES

TOTAL PASSENGERS - IN AND OUT OF BOSTON

	<u>1978</u>	<u>1979</u>	<u>Change</u>	
			\$	%
JANUARY	404,669	413,871	\$ 9,202	2.3
FEBRUARY	385,441	440,086	54,645	14.2
MARCH	409,449	434,862	25,413	6.2
APRIL	352,981	407,250	54,269	15.4
MAY	378,867	409,430	30,563	8.1
JUNE	368,815	417,315	48,500	13.2
JULY	320,095	434,478	114,383	35.7
AUGUST	365,678	437,333	71,655	19.6
SEPTEMBER	359,853	330,136 (A)	(29,717)	(8.3)
OCTOBER	406,340	455,893	49,553	12.2
NOVEMBER	391,826	423,587	31,761	8.1
DECEMBER	<u>377,270</u>	<u>409,410</u>	<u>32,140</u>	<u>8.5</u>
Year Total	4,521,284	5,013,651	\$492,367	10.9*

TOTAL PASSENGER REVENUE

	<u>1978</u>	<u>1979</u>	<u>Change</u>	
			\$	%
JANUARY	\$ 453,352	\$470,838	\$ 17,486	3.9%
FEBRUARY	441,453	421,232	(20,221)	(4.6)
MARCH	410,109	447,472	37,363	9.1
APRIL	371,784	444,077	72,293	19.4
MAY	418,835	445,018	26,183	6.3
JUNE	378,096	451,906	73,810	19.5
JULY	384,111	507,849	123,738	32.2
AUGUST	382,020	477,959	95,939	25.1
SEPTEMBER	409,377	396,420(A)	(12,957)	(3.2)
OCTOBER	459,931	513,163	53,232	11.6
NOVEMBER	409,164	447,216	38,052	9.3
DECEMBER	<u>414,841</u>	<u>460,978</u>	<u>46,137</u>	<u>11.1</u>
Year Total	4,933,073	5,484,128	551,054	11.2

\*Includes 133,977 passengers who received bus service between Boston and Lowell.

(A) - Railroad Strike - (North) - September 10-11-12-13, 1979.

No train service Ipswich to North Beverly from September 6 to December 14, 1979.

SOURCE: Commuter Railroad - B&M Passengers and Revenue Data

Source

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2nd Q  
3rd Q  
4th Q  
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COMMUTER RAILROAD

BOSTON & MAINE - NORTHERN ROUTES

PASSENGERS IN AND OUT OF BOSTON BY ROUTE

Route	1978	1979	Increase/(Decrease)	
			#	%
EASTERN				
1st Quarter	368,065	424,697	56,632	15.4%
2nd Quarter	358,073	433,370	75,297	21.0
3rd Quarter	364,164	461,189	97,025	26.6
4th Quarter	387,452	443,549	56,097	14.5
TOTAL YEAR	1,477,754	1,762,805	285,051	19.3
READING				
1st Quarter	302,226	297,973	(4,253)	(1.4)
2nd Quarter	262,709	307,929	45,220	17.2
3rd Quarter	238,723	302,877	64,154	26.9
4th Quarter	268,871	311,132	42,261	15.7
TOTAL YEAR	1,072,529	1,219,911	147,382	13.7
NEW HAMPSHIRE				
1st Quarter	314,543	330,755	16,212	5.2
2nd Quarter	283,805	252,236	(31,569)	(11.1)
3rd Quarter	260,860	210,579	(50,281)	(19.3)
4th Quarter	305,482	141,045	(164,437)	(153.8)
TOTAL YEAR	1,164,690	934,615	(230,075)	(19.8)
FITCHBURG				
1st Quarter	214,725	235,394	20,669	9.6
2nd Quarter	196,076	240,460	44,384	22.6
3rd Quarter	181,879	227,187	45,423	25.0
4th Quarter	213,631	259,302	45,556	21.3
TOTAL YEAR	806,311	962,343	156,032	19.4
TOTAL NORTHERN ROUTES				
1st Quarter	1,199,559	1,288,819	89,260	7.4
2nd Quarter	1,100,663	1,233,995	133,332	12.1
3rd Quarter	1,045,626	1,201,947	156,321	14.9
4th Quarter	1,175,436	1,154,913	(20,523)	(1.7)
TOTAL YEAR	4,521,284	4,879,674	358,390	7.9

SOURCE: Commuter Railroad - B&M Passengers and Revenue Data

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COMMUTER RAILROAD  
BOSTON & MAINE - SOUTHERN ROUTES

TOTAL PASSENGERS - IN AND OUT OF BOSTON

	<u>1978</u>	<u>1979</u>	<u>%</u> <u>Increase/Decrease</u>	
JANUARY	292,080	322,073	29,993	10.3
FEBRUARY	226,580	321,803	95,223	42.0
MARCH	309,503	322,556	13,053	4.2
APRIL	253,399	293,296	39,897	15.8
MAY	296,011	315,848	19,837	6.7
JUNE	287,532	306,399	18,867	6.6
JULY	239,983	316,040	76,057	31.7
AUGUST	282,454	331,205	48,751	17.3
SEPTEMBER	270,573	265,399*	(5,174)	(1.9)
OCTOBER	288,956	309,981	21,025	7.3
NOVEMBER	288,554	263,303	(25,251)	(8.8)
DECEMBER	<u>284,739</u>	<u>258,927</u>	<u>(25,812)</u>	<u>(9.1)</u>
YEAR TOTAL	3,320,364	3,626,830	306,466	9.2

TOTAL PASSENGER REVENUE

	<u>1978</u>	<u>1979</u>	<u>Change</u> <u>\$</u> <u>%</u>	
JANUARY	\$ 349,653	\$ 371,129	\$21,476	6.1%
FEBRUARY	294,269	313,383	19,114	6.5
MARCH	275,944	321,153	45,209	16.4
APRIL	262,658	309,336	46,678	17.8
MAY	319,407	374,938	55,531	17.4
JUNE	267,403	316,438	49,035	18.3
JULY	245,725	370,196	124,471	50.0
AUGUST	291,829	342,057	50,228	17.2
SEPTEMBER	320,086	343,367*	23,281	7.3
OCTOBER	364,484	392,342	27,858	7.6
NOVEMBER	318,400	295,289**	(23,111)	(7.3)
DECEMBER	<u>305,504</u>	<u>292,736</u>	<u>(12,768)</u>	<u>(4.2)</u>
YEAR TOTAL	3,615,362	4,042,364	427,002	11.8

( ) denotes decrease

\*Railroad Strike (South) - September 12-13, 1979

\*\*Needham Branch Service Terminated October 13, 1979

Back Bay Shuttle Train Instituted on November 3, 1979

SOURCE: Commuter Railroad - B&M Passengers and Revenue Data

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COMMUTER RAILROAD  
BOSTON & MAINE - SOUTHERN ROUTES

PASSENGERS IN AND OUT OF BOSTON BY ROUTE

ROUTE	1978	1979	Increase/(Decrease)	
			#	%
FRAMINGHAM				
1st Quarter	105,850	114,386	8,536	8.1%
2nd Quarter	104,893	111,593	6,700	6.4
3rd Quarter	97,964	116,910	18,946	19.3
4th Quarter	<u>101,210</u>	<u>147,178</u>	<u>45,968</u>	<u>45.4</u>
TOTAL YEAR	409,917	490,067	80,150	19.6
NEEDHAM				
1st Quarter	177,555	177,349	( 206)	(0.1)
2nd Quarter	178,227	173,879	(4,348)	(2.4)
3rd Quarter	168,640	176,633	7,993	4.7
4th Quarter	<u>170,824</u>	<u>24,614*</u>	<u>(146,210)</u>	<u>(85.6)</u>
TOTAL YEAR	695,246	552,475	(142,771)	(20.5)
FRANKLIN				
1st Quarter	163,468	209,655	46,187	28.3
2nd Quarter	156,180	204,287	48,107	30.8
3rd Quarter	150,900	214,624	63,724	42.2
4th Quarter	<u>168,422</u>	<u>243,661</u>	<u>75,239</u>	<u>38.7</u>
TOTAL YEAR	638,970	872,227	233,257	36.5
PROVIDENCE AND STOUGHTON				
1st Quarter	381,290	465,042	83,752	22.0
2nd Quarter	397,642	425,784	28,142	7.1
3rd Quarter	375,506	404,477	28,971	7.7
4th Quarter	<u>421,793</u>	<u>416,758</u>	<u>(5,035)</u>	<u>(1.2)</u>
TOTAL YEAR	1,576,231	1,712,061	135,830	8.6
TOTAL SOUTHERN ROUTES				
1st Quarter	828,163	966,432	138,269	16.7
2nd Quarter	836,942	915,543	78,601	9.4
3rd Quarter	793,010	912,644	119,634	15.1
4th Quarter	<u>862,249</u>	<u>832,211</u>	<u>(30,058)</u>	<u>(3.5)</u>
TOTAL YEAR	3,320,364	3,626,830	306,466	9.2

\* Needham Branch - Service Terminated Oct. 13, 1979 - Out of Service Indefinitely

SOURCE: Commuter Railroad - B&M Passengers and Revenue Data

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### III. ANALYSIS OF 1979 SERVICE PERFORMANCE

The third section of this report measures performance. The primary measurement is the percentage of Scheduled Trips Run.

The selection of that statistic was based on the assumption that the schedule is properly designed to meet the transportation needs of the riding public with maximum utilization of the MBTA's total resources. On that basis, therefore, successful management of the MBTA will mean the closest possible adherence to the schedule. We have excluded from the calculation of the percent of scheduled trips actually run the number of trips added to replace scheduled trips not run. Our reason for the exclusion is that these trips distort the picture in relation to close adherence to the planned schedule.

In addition to presentation of the percentage of scheduled trips actually run, we have presented a breakdown of the causes for scheduled trips not being run. The purpose of this breakdown is to determine to the extent possible the causes which prevent adherence to the schedule, so that management attention can be focused on these causes if they are correctable. For instance, a high percentage of Scheduled Trips Not Run because vehicles were not available strongly suggests a deficiency of performance in maintenance. A high incidence of Scheduled Trips Not Run because a crew was not available would indicate a personnel problem. However, a high percentage of Scheduled Trips Not Run because of weather



is not likely to be subject to correction by management. It should be noted that while severe weather resulting in direct cancelation of a scheduled trip is included as a category in this breakdown, that bad weather conditions also contribute to increases in vehicles not being available for a scheduled run, insufficient headway to permit a scheduled run, development of switch problems, and other miscellaneous causes for cancellation of scheduled trips.

No performance measurement is meaningful unless a performance standard is applied identifying the performance level which should be achieved.

In 1977, after careful consideration and after consultation with MBTA management, we selected a performance standard of 98% of scheduled trips as the percentage which should actually be run. Our analysis of service performance in this report is based on that standard. Commuter rail service is not included in this performance standard.

#### Rapid Transit Lines

During 1979, none of the three rapid transit lines consistently met or exceeded the 98% performance standard. Although vehicle availability remained a problem during 1979, this problem should improve during 1980 upon the delivery of 190 new vehicles for Orange and Blue Line service, and also upon completion of the Red Line Vehicle Rehabilitation Program. Mechanical (i.e. switch,



roadbed, signal, electrical, etc.) failures continued to plague the rapid transit lines during 1979 and accounted for approximately half of the missed trips on the Red and Orange Lines, and over 10% on the Blue Line. The crew availability statistics for the Blue Line should be cause for great concern.

#### Streetcar Lines

The operating performance of the streetcar lines continued to decline, due primarily to the poor availability levels of the LRV and the high rate of failure of the PCC's. By year's end, LRV's were operating the full length of the Riverside, Boston College, and Cleveland Circle Lines, and to Brigham Circle on the Arborway Line. Fourth Quarter statistics for all lines were very poor with the Arborway Line showing almost 20% of scheduled trips missed. Vehicle availability was the major cause of missed trips on all lines with construction activity along Huntington Avenue further affecting those levels on the Arborway Line. Only the Mattapan Line showed somewhat satisfactory levels of performance during 1979.

Total reconstruction of both the Arborway and Boston College lines during 1980 should, upon completion, significantly improve performance and ride quality along these lines.

#### Bus - Urban Garages

Urban bus operations showed very disturbing levels of per-



formance during 1979. Disabled vehicles continued to be the primary cause of missed trips. The Cabot Garage posted the poorest results with over 10% of scheduled trips missed during the Fourth Quarter.

#### Bus - Suburban Garages

Bus operations from suburban garages approached or attained the performance standard of 98% of scheduled trips run. Disabled vehicles were the major cause of missed trips during 1979 with performance levels reaching their lowest point during the Fourth Quarter.

#### Trackless Trolley

Trackless Trolley operations (in Cambridge, Belmont, and Watertown) continued to show very consistent and satisfactory levels of performance during 1979. Route 72 (Huron Avenue) and Route 77A (North Cambridge) service was interrupted by various construction projects causing occasional bus replacement service and/or service delays. The incidence of disabled vehicles remains a concern.

#### Commuter Rail

Despite the addition of new equipment in 1979, commuter rail on-time performance levels failed to consistently surpass those of 1978, as had been hoped. New equipment delivered included 60 Pullman coaches, 59 leased GO Transit coaches, 13 F40PH locomotives, and 19 F10 locomotives. Although equipment availability finally improved,





major track work on both North Side and South Side routes caused significant delays to many trains. North Side performance was affected by the reinstitution of both Lowell and Ipswich service and the inauguration of Haverhill service over rails undergoing major rehabilitation. South Side performance was adversely affected by the program to upgrade Shore Line (Attleboro/Providence) tracks as part of the Federally-funded Northeast Corridor Improvement project (NECIP). The program to relocate the MBTA's Orange Line into the Southwest Corridor meant the rerouting (in November) of all trains over the Dorchester Branch, which initially experienced signal malfunctions. Needham Branch service was temporarily suspended in October due to the Southwest Corridor program. Many former Needham Branch passengers rode Framingham trains, overcrowding and delaying them.

Track work is scheduled to continue into 1980 and, despite the resultant delays, should ultimately improve travel times and on-time performance.

#### MBTA PASS PROGRAM

The MBTA Pass Program continued its highly successful performance and grew increasingly more popular in 1979. The number of passholders increased by 65% over the 1978 total. This unprecedented increase is due primarily to the introduction of pass sales to persons without member-employer affiliation.



1979 SUMMARY OF WEEKDAY SERVICE PERFORMANCE

RAPID TRANSIT LINES

1979 Quarters	Scheduled Trips	Scheduled Trips Run	% Sched. Trips Not Run	Scheduled Trips Not Run	Veh N/A	Causes as % of Total Trips			Weath.	Hdwy.	Misc.
						CREW N/A	D/A Veh.				
1st Qtr.	32,090	31,824	0.8%	266	10.5%	2.2%	5.3%		0.0%	39.1%	42.9%
2nd Qtr.	31,426	31,346	0.2%	80	7.5%	7.5%	32.5%		0.0%	47.5%	5.0%
3rd Qtr.	30,786	30,012	2.5%	774	.5%	1.0%	0.0%		0.0%	89.4%	9.0%
4th Qtr.	31,116	30,796	1.0%	320	2.5%	2.8%	0.6%		3.8%	60.3%	30.0%
1979 Year Total	125,418	123,978	1.1%	1,440	3.2%	2.0%	2.9%		0.8%	71.3%	19.7%
1978 Year Total	125,840	125,155	0.5%	685	19.0%	5.0%	0.0%		2.0%	66.0%	8.0%
1977 Year Total	130,316	129,278	0.8%	1,038	20.0%	9.0%	5.0%		13.0%	16.0%	37.0%
1st Qtr.	54,442	51,743	5.0%	2,699	24.9%	4.1%	16.2%		0.0%	50.1%	4.7%
2nd Qtr.	46,670	44,000	5.7%	2,670	6.9%	10.4%	16.4%		0.2%	64.1%	1.9%
3rd Qtr.	44,466	43,425	2.3%	1,041	10.6%	21.0%	30.0%		0.0%	34.5%	3.9%
4th Qtr.	45,854	43,759	4.6%	2,094	20.9%	18.3%	21.9%		0.0%	37.4%	1.5%
1979 Year Total	191,162	182,927	4.3%	8,505	16.5%	11.7%	19.3%		0.0%	49.5%	2.9%
1978 Year Total	183,020	174,867	4.5%	8,153	38.0%	4.0%	16.0%		6.0%	30.0%	6.0%
1977 Year Total	195,614	187,499	4.1%	8,115	44.0%	3.0%	13.0%		6.0%	7.0%	7.0%
1st Qtr.	34,746	33,612	3.3%	1,134	14.8%	39.3%	21.2%		3.4%	18.5%	2.8%
2nd Qtr.	34,398	34,082	0.8%	316	3.2%	58.9%	22.2%		0.0%	2.5%	13.3%
3rd Qtr.	34,480	33,287	3.5%	1,193	2.3%	25.0%	11.3%		0.0%	12.4%	49.0%
4th Qtr.	34,152	33,322	2.4%	830	10.8%	33.5%	9.2%		0.0%	6.0%	40.5%
1979 Year Total	137,776	134,303	2.5%	3,473	8.5%	25.5%	15.0%		1.1%	12.0%	28.6%
1978 Year Total	144,130	136,074	5.6%	8,056	34%	7%	17%		2%	12%	28%

ORANGE LINE

RED LINE

BLUE LINE

NOTE: Because of extensive repairs on the Blue Line in 1978, bus service was substituted for many trips.

SOURCE: MBTA Daily Service Reports



1979 SUMMARY OF WEEKDAY SERVICE PERFORMANCE

STREETCAR LINES

Scheduled Trips	Scheduled Trips Run	% Sched. Trips Not Run	Scheduled Trips		Causes as a % of Trips Not Run		Accident	Weath.	Misc.
			Run	Not Run	Veh N/A	Crew N/A			
1st Quarter	52,444	50,032	4.6%	2,412	48.4%	15.9%	3.6%	2.7%	10.9%
2nd Quarter	51,608	46,960	9.0%	4,648	81.7%	3.9%	1.0%	0.0%	1.5%
3rd Quarter	49,134	44,948	8.5%	4,186	78.1%	9.4%	0.1%	.7%	1.0%
4th Quarter	48,984	45,628	6.9%	3,356	76.8%	17.4%	0.3%	1.0%	2.1%
1979 Year Total	202,170	187,568	7.2%	14,602	74.0%	10.6%	1.0%	.9%	3.1%
1978 Year Total	203,678	190,732	6.4%	12,946	50.0%	22.0%	17%	→	→
1977 Year Total	203,204	185,464½	8.7%	17,739½	92.0%	4.0%	3%	→	→
1st Quarter	17,703	16,130	8.9%	1,573	57.7%	17.6%	.4%	7.6%	7.2%
2nd Quarter	16,823	15,190	9.7%	1,633	54.6%	17.9%	1.0%	0.0%	17.3%
3rd Quarter	14,109	12,681	10.1%	1,428	62.4%	11.9%	.3%	0.0%	14.4%
4th Quarter	18,101	14,711½	18.7%	3,395½	49.9%	8.6%	.5%	0.2%	35.3%
1979 Year Total	66,736	58,712½	12.0%	8,029½	54.6%	12.9%	.6%	1.6%	22.4%
1st Quarter	11,615	11,464	1.3%	151	9.9%	38.4%	18.5%	0.0%	2.6%
2nd Quarter	11,061	10,949	1.0%	112	14.3%	34.8%	4.5%	0.0%	33.0%
3rd Quarter	10,719	10,525	1.8%	194	76.3%	3.6%	0.0%	0.0%	4.6%
4th Quarter	10,911	10,596	2.9%	315	68.6%	21.6%	0.0%	0.0%	.3%
1979 Year Total	44,306	43,534	1.7%	772	51.2%	22.3%	4.3%	0.0%	6.6%

ARBORWAY AND MATTAPAN COMBINED

1979 Combined	111,042	102,246½	7.9%	8,801½	54.3%	13.7%	.9%	1.5%	21%
1978 Combined	89,916½	83,213	7.5%	6,703½	34%	6%	49%	→	→
1977 Combined	91,169½	76,883	15.7%	14,286½	55%	3%	37%	→	→

SOURCE: MBTA Daily Service Reports





## BUS-URBAN RATING STATIONS

1979 Quarters	Scheduled Trips	Scheduled Trips Run	% Sched. Trips Not Run	Causes as % of Total Trips					Misc.		
				Veh.		Oper. N/A	D/A Veh.	Weather		School	
				N/A							
ARBORWAY	1st Qtr.	89,775½	86,134	4.1%	3,641½	50.5%	10.2%	16.8%	0.0%	8.3%	14.2%
	2nd Qtr.	86,810½	84,198½	3.0%	2,612	43.1%	9.1%	21.0%	0.0%	24.8%	2.0%
	3rd Qtr.	78,201	74,303½	5.0%	3,897½	77.8%	3.6%	12.1%	0.0%	.7%	5.8%
	4th Qtr.	83,319	77,145	7.4%	6,174	72.6%	7.1%	5.7%	0.0%	10.5%	4.1%
	1979 Year Total	338,106	321,781	4.8%	16,325	64.2%	7.3%	12.2%	0.0%	9.9%	6.4%
CABOT	1978 Year Total	360,739½	353,162	2.1%	7,577½	14.0%	17.0%	19.0%	11.0%	32.0%	7.0%
	1977 Year Total	374,104½	367,999	1.6%	6,107½	12.0%	20.0%	20.0%	0.0%	0.0%	48.0%
	1st Qtr.	144,766	135,260	6.6%	9,506	60.0%	9.1%	24.4%	0.7%	5.8%	0.1%
	2nd Qtr.	143,259	134,488	6.1%	8,771	54.1%	5.8%	34.8%	0.0%	4.8%	0.6%
	3rd Qtr.	135,168	122,080	9.7%	13,088	71.7%	7.5%	18.5%	0.0%	2.3%	0.0%
BENNETT	4th Qtr.	137,971	123,612	10.4%	14,359	66.8%	18.6%	9.7%	0.0%	4.9%	0.0%
	1979 Year Total	561,164	515,440	8.1%	45,724	64.3%	11.1%	20.1%	0.1%	4.3%	0.1%
	1978 Year Total	521,542½	507,737	2.6%	13,805½	26.0%	20.0%	36.0%	3.0%	13.0%	2.0%
	1977 Year Total	520,915	513,947½	1.3%	6,967½	21.0%	31.0%	35.0%	0.0%	0.0%	13.0%
	1st Qtr.	64,964½	64,035	1.4%	929½	40.0%	6.9%	38.8%	1.1%	3.8%	9.4%
SALEM STREET	2nd Qtr.	68,793½	67,959½	1.2%	834	38.4%	8.6%	28.7%	0.0%	11.0%	13.2%
	3rd Qtr.	62,250	61,838½	0.7%	411½	6.3%	16.9%	52.0%	0.0%	0.0%	24.8%
	4th Qtr.	62,404½	61,048½	2.2%	1,355	35.8%	16.4%	22.1%	0.5%	12.9%	12.3%
	1979 Year Total	258,412½	254,881½	1.4%	3,529½	34.1%	12.1%	31.5%	0.5%	8.6%	13.2%
	1978 Year Total	238,649½	234,660½	1.7%	3,989	23.0%	12.0%	43.0%	3.0%	7.0%	12.0%
STREET	1977 Year Total	236,402	232,641	1.6%	3,761	23.0%	14.0%	42.0%	1.0%	0.0%	20.0%
	1st Qtr.	109,994	107,785½	2.0%	2,208½	33.1%	6.6%	27.6%	0.0%	31.4%	1.2%
	2nd Qtr.	104,238	101,594½	2.5%	2,644	36.1%	6.1%	34.2%	0.0%	21.2%	2.4%
	3rd Qtr.	81,348	78,420½	3.6%	2,927½	64.7%	5.4%	29.2%	0.0%	0.0%	0.7%
	4th Qtr.	103,757	99,205	4.4%	4,552	69.5%	5.4%	14.2%	0.0%	10.1%	0.9%
STREET	1979 Year Total	399,337	387,005	3.1%	12,332	54.7%	5.8%	24.4%	0.0%	13.9%	1.2%
	1978 Year Total	447,502½	439,432	1.8%	8,070½	28.0%	12.0%	31.0%	1.0%	25.0%	3.0%
	1977 Year Total	472,276	464,711	1.6%	7,565	15.0%	9.0%	40.0%	0.0%	0.0%	37.0%

SOURCE: MBTA Daily Service Reports



# BUS-SUBURBAN GARAGES

1979 Quarters	Scheduled Trips	Scheduled Trips Run	% Sched. Trips		Sched. Trips Not Run	Veh. N/A	Causes as % of Total Trips				Misc.
			Not Run	Trips			Oper. N/A	D/A Veh.	Weath.	School	
1st Qtr.	38,183	37,847½	0.9%	335½	19.7%	13.3%	62.3%	0.4%	2.4%	1.9%	
2nd Qtr.	38,036	37,274	2.0%	762	36.4%	3.2%	33.3%	0.0%	27.0%	0.1%	
3rd Qtr.	36,303	35,296½	2.8%	1,006½	59.0%	4.7%	36.3%	0.0%	0.0%	0.4%	
4th Qtr.	35,126	33,464	4.7%	1,662½	61.6%	3.8%	24.4%	0.0%	10.1%	0.1%	
1979 Year Total	147,648	143,882	2.6%	3,776	52.0%	4.8%	32.7%	0.0%	10.2%	0.4%	
1978 Year Total	151,460	149,873½	1.0%	1,587	17.0%	13.0%	31.0%	7.0%	17.0%	15.0%	
1977 Year Total	161,564	160,049	0.9%	1,515	2.0%	15.0%	16.0%	0.0%	0.0%	67.0%	
1st Qtr.	43,184	42,841	0.8%	343	40.2%	7.7%	49.7%	0.0%	0.9%	1.5%	
2nd Qtr.	42,615	42,389	0.5%	226	27.2%	8.2%	63.7%	0.0%	0.0%	0.8%	
3rd Qtr.	37,993½	37,536½	1.2%	457	53.2%	6.1%	40.5%	0.0%	0.0%	0.2%	
4th Qtr.	41,595½	40,308½	3.1%	1,287	58.4%	7.9%	18.4%	0.0%	11.4%	3.8%	
1979 Year Total	165,388	163,075	1.4%	2,313	51.6%	7.6%	31.8%	0.0%	6.5%	2.5%	
1978 Year Total	160,832	159,872½	0.6%	959½	1.0%	22.0%	45.0%	0.0%	26.0%	6.0%	
1977 Year Total	168,293	166,694	1.0%	1,599	1.0%	8.0%	11.0%	0.0%	0.0%	80.0%	

## 1979 SUMMARY OF WEEKDAY SERVICE PERFORMANCE

### TRACKLESS TROLLEY

1979 Quarters	Scheduled Trips	Scheduled Trips Run	% Sched. Trips		Sched. Trips Not Run	Causes as % of Total Trips Not Run							
			Not Run	Trips		Veh. N/A	Oper. N/A	D/A Veh.	Weath.	School	Misc.		
1st Qtr.	21,964	21,728	1.1%	236	14.0%	10.0%	55.7%	4.2%	0.0%	16.1%			
2nd Qtr.	28,745	28,601½	0.5%	154½	0.6%	17.5%	62.5%	0.6%	0.0%	18.8%			
3rd Qtr.	25,122	25,015½	0.4%	106½	0.9%	19.7%	65.7%	0.0%	0.0%	13.6%			
4th Qtr.	29,156	28,313½	2.9%	842½	0.5%	5.7%	13.0%	0.2%	0.0%	80.5%			
1979 Year Total	104,998	103,658½	1.3%	1,339½	2.9%	8.9%	30.4%	1.0%	0.0%	56.8%			
1978 Year Total	80,053½	79,301½	0.9%	752	3.0%	18.0%	50.0%	10.0%	1.0%	18.0%			
1977 Year Total	82,114	81,444½	0.8%	669½	5.0%	24.0%	49.0%	8.0%	14.0%	0.0%			

SOURCE: MBTA Daily Service Reports



1979 SUMMARY OF SERVICE PERFORMANCE

<u>Northern Routes</u>	<u>% Total Trains Operated on Time</u>		<u>% Equipment Available in Rush Hour</u>	
	<u>1978*</u>	<u>1979</u>	<u>1978</u>	<u>1979</u>
January	51.1%	78.7%	78.7%	83.9%
February	43.8	71.1	74.1	84.2
March	58.6	75.4	71.4	89.8
April	64.0	76.0	72.5	93.7
May	68.4	85.1	78.5	94.4
June	73.1	87.3	74.4	98.9
July	74.9	82.3	79.5	98.5
August		90.5		98.2
September	73.3	75.2	85.2	96.3
October	74.6	53.0	85.3	97.1
November	82.5	69.5	84.8	79.2
December	87.1	75.9	85.1	94.0
Year To Date	71.1%	70.7%	76.6%	92.0%
<u>Southern Routes</u>				
January	44.1%	68.5%	48.4%	61.1%
February	66.7	49.6	62.7	61.3
March	72.4	58.9	63.0	87.8
April	75.9	69.8	75.5	95.1
May	71.4	58.9	70.8	92.6
June	74.6	66.3	70.6	93.2
July	82.7	73.8	62.2	98.3
August		63.8		97.7
September	82.1	60.0	78.8	91.2
October	74.8	55.5	81.3	94.1
November	79.1	48.8	78.6	96.6
December	83.7	77.2	77.7	97.0
Year to Date	71.5%	56.8%	74.9%	88.5%

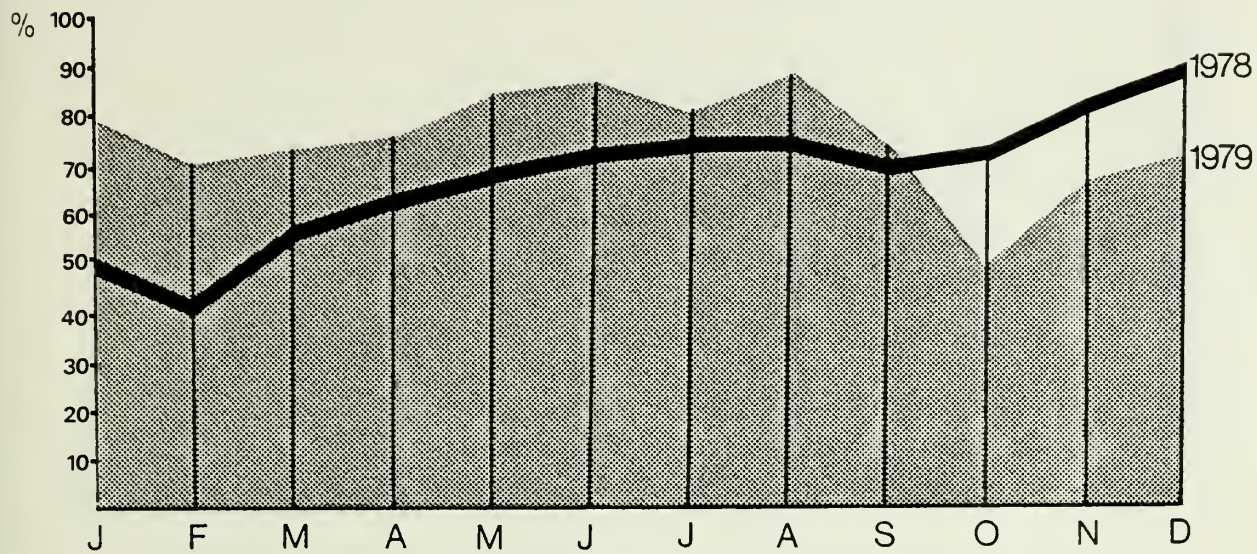
\*NOTE: Excludes Jan. 30 - Feb 17 because of storm conditions. Does reflect reduced base on account of 25% cut in service.

SOURCE: Commuter Railroad - B&M Passengers and Revenue Data

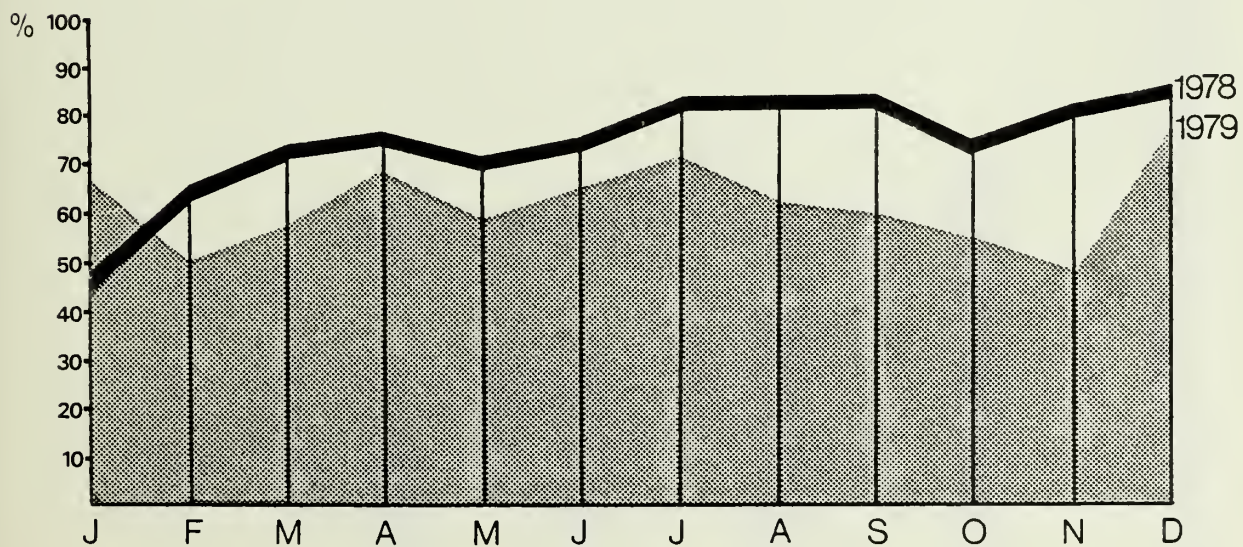




## NORTH



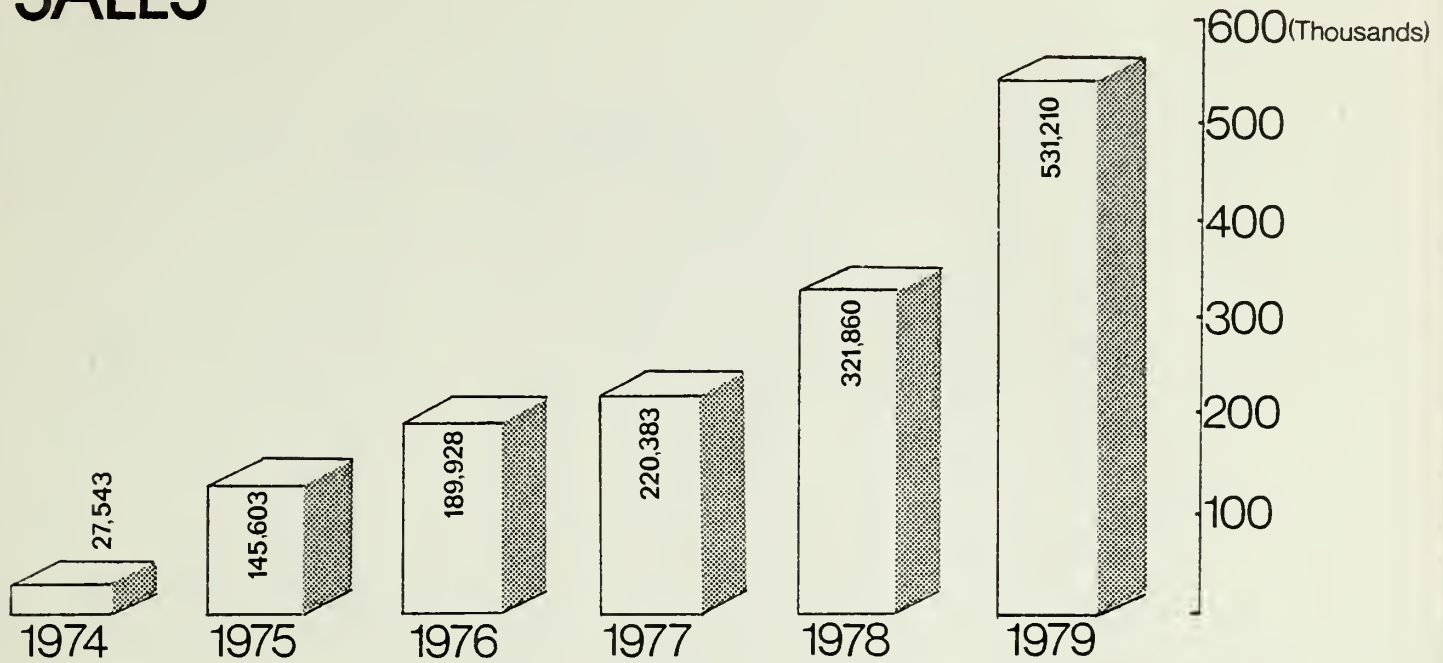
## SOUTH



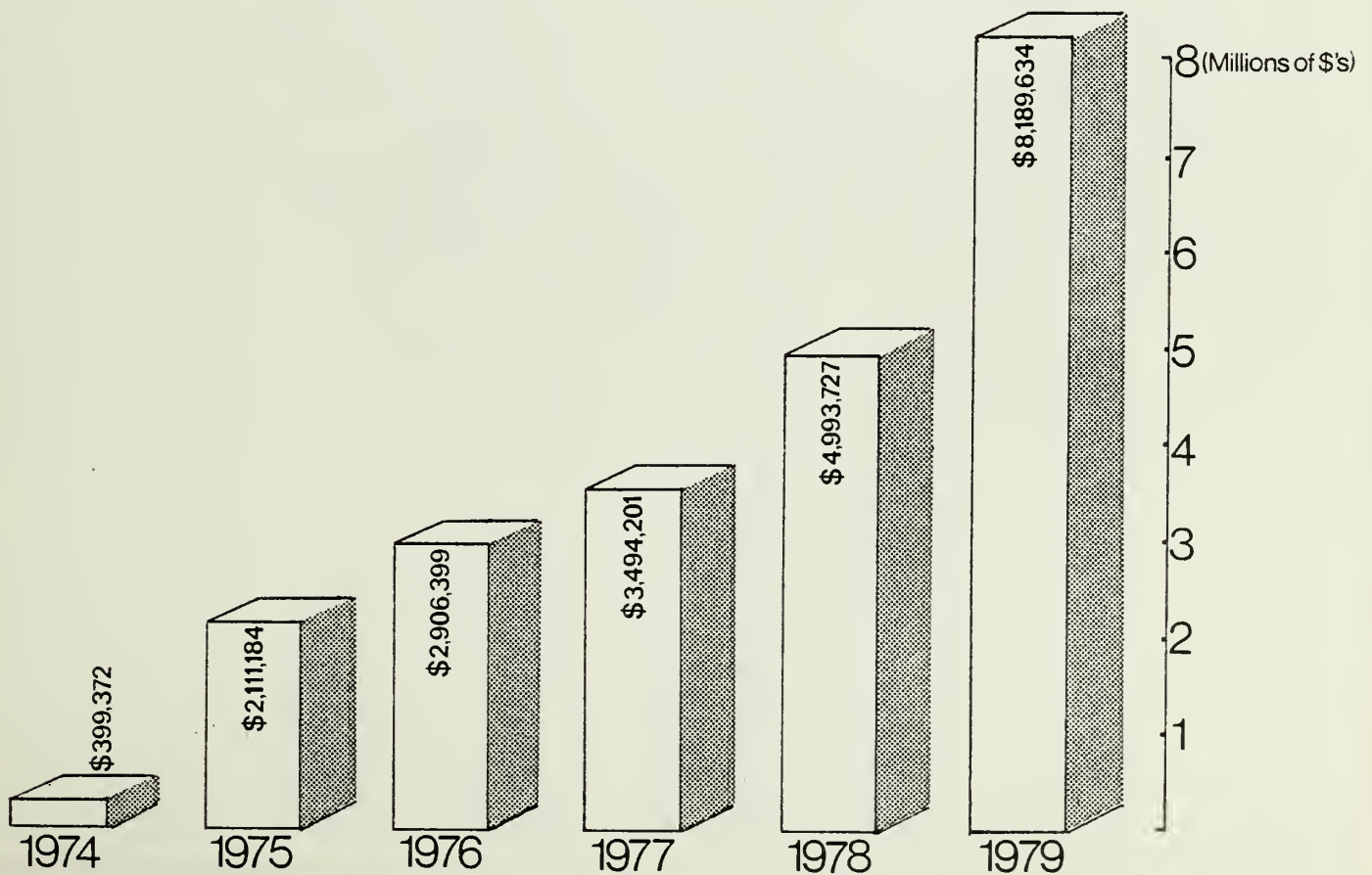




## SALES



## REVENUE





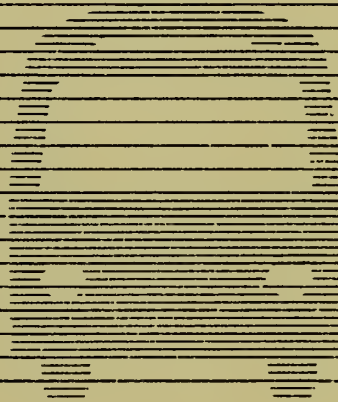
# MBTA ADVISORY BOARD STAFF REPORT

GOVERNMENT DOCUMENT  
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ANALYSIS OF 1981 MBTA BUDGET AND SERVICE PERFORMANCE





ANALYSIS OF MBTA BUDGET AND  
SERVICE PERFORMANCE FOR 1981

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1981 ANNUAL REPORT  
BUDGET AND SERVICE PERFORMANCE

Overview

1981 was a tumultuous year for the region's transit system. Barry Locke, the man who was the Chief Executive Officer of the Authority for the first three months of the year (as well as the Chairman of the Board of Directors and the Governor's Secretary of Transportation and Construction) was convicted of fraud and is now in prison. Riders were hit with slashes in service levels, with reduced performance of the service which was provided and with whopping fare increases. Labor staged slow downs, and absenteeism soared. As cities and towns struggled with the first year of Proposition 2 1/2 mandated fiscal constraints, the MBTA submitted a request for additional money, required because of \$10 million in overspending during the first part of the year. Management rights legislation, passed in 1980, was upheld by the U.S. Circuit Court of Appeals in September, 1981, catching management flat footed with no plan for its implementation.

1981 was a mixed year for the Authority. The Commonwealth Avenue rapid transit service re-opened; the Arborway Line remained closed. New Orange Line cars were put into service; no progress was made toward procuring the long promised, long delayed additional Green Line vehicles. After many years of prodding by the Advisory Board and others, the inefficient and wasteful South Boston Power Plant was closed, saving millions of dollars; other energy saving measures were ignored, costing millions of dollars. (cf. Advisory Board Report on MBTA use of energy.) Overtime hours were significantly lower; sick and absentee hours skyrocketed.

Some of the service cut in the Spring was restored; the number of trips missed increased sharply from the previous year. The Red Line extension was virtually completed; total Red Line performance over the year was far below previous levels and far below even minimal standards. Budget control became a priority of the new management; cost per revenue mile increased. Elderly used the system in record numbers; ridership plunged to record lows. Transportation revenue increased by \$15.6 million as a result of fare increases in 1980 and 1981; revenue was 57% below Authority projections. Total manpower decreased, resulting in a leaner system; transit managers with experience and know how continued to leave the Authority. James F. O'Leary was appointed General Manager; the hiring of laid off DPW personnel proved that political patronage still greatly influences who works at the T. A \$95 million cap on local assessments was promised by Acting Secretary Carlin in July; yet the Advisory Board had to hold the 1982 budget hostage in December before that commitment was honored.

#### Change in Management, Change in Priorities

In 1979 and 1980, the cities and towns used their statutory budget power in an attempt to limit Authority spending. Governor King's transit heads, Robert Foster and Barry Locke, however, were unable to manage within their budget constraints and in both years the Authority ran out of money in December. Illegal attempts by the Governor to take over the system were stopped by the Courts.

The MBTA Advisory Board has for years pushed to increase efficiency at the T. Subsequent to the passage of Proposition 2 1/2 in November of 1980, that objective became a necessity, and the Advisory Board played a major role in the passage of reform legislation which would give Authority management the tools with which to gain control over wasteful



labor practices contributing to ever increasing costs. 1981 was to have been a year of reform at the MBTA.

By October of 1980 Barry M. Locke had served 5 months as Acting Chairman and CEO of the MBTA since Robert Foster's resignation. Attorney General Bellotti found that Mr. Locke had either to vacate that office or have his name submitted to the Advisory Board for confirmation. In November 1980, Governor King submitted Mr. Locke's name to the Advisory Board as his nominee for the position of Chairman and Chief Executive Officer. For the first time in MBTA history, the Governor's nominee was rejected by the Advisory Board under its statutory authority. In spite of this action by the 79 communities in the district, Governor King, as part of the 1980 MBTA reorganization package, introduced provisions which combined the jobs of Secretary of Transportation and Construction and Chairman of the MBTA. These provisions allowed one person to exercise unprecedented power over the multi-billion dollar construction and transportation programs of the Commonwealth. Upon passage of that statute, Governor King appointed Mr. Locke to the new "superposition". No longer was Advisory Board approval required for the position of MBTA Chairman, only for that of General Manager.

For the first three months of 1981, Mr. Locke stalled all efforts of the Legislature, Advisory Board and others to find a qualified General Manager for the MBTA. From December 1980 to April 16, 1981 he served in all three positions: Secretary of Transportation and Construction, Chairman of the MBTA Board of Directors and acting General Manager of the Authority. In that four month period, the MBTA had three different Directors of Operations. James O'Leary, who had been head of the Governor's transportation transition team which had recommended Mr. Locke became General Manager with Advisory Board approval on April 16, 1982. He had



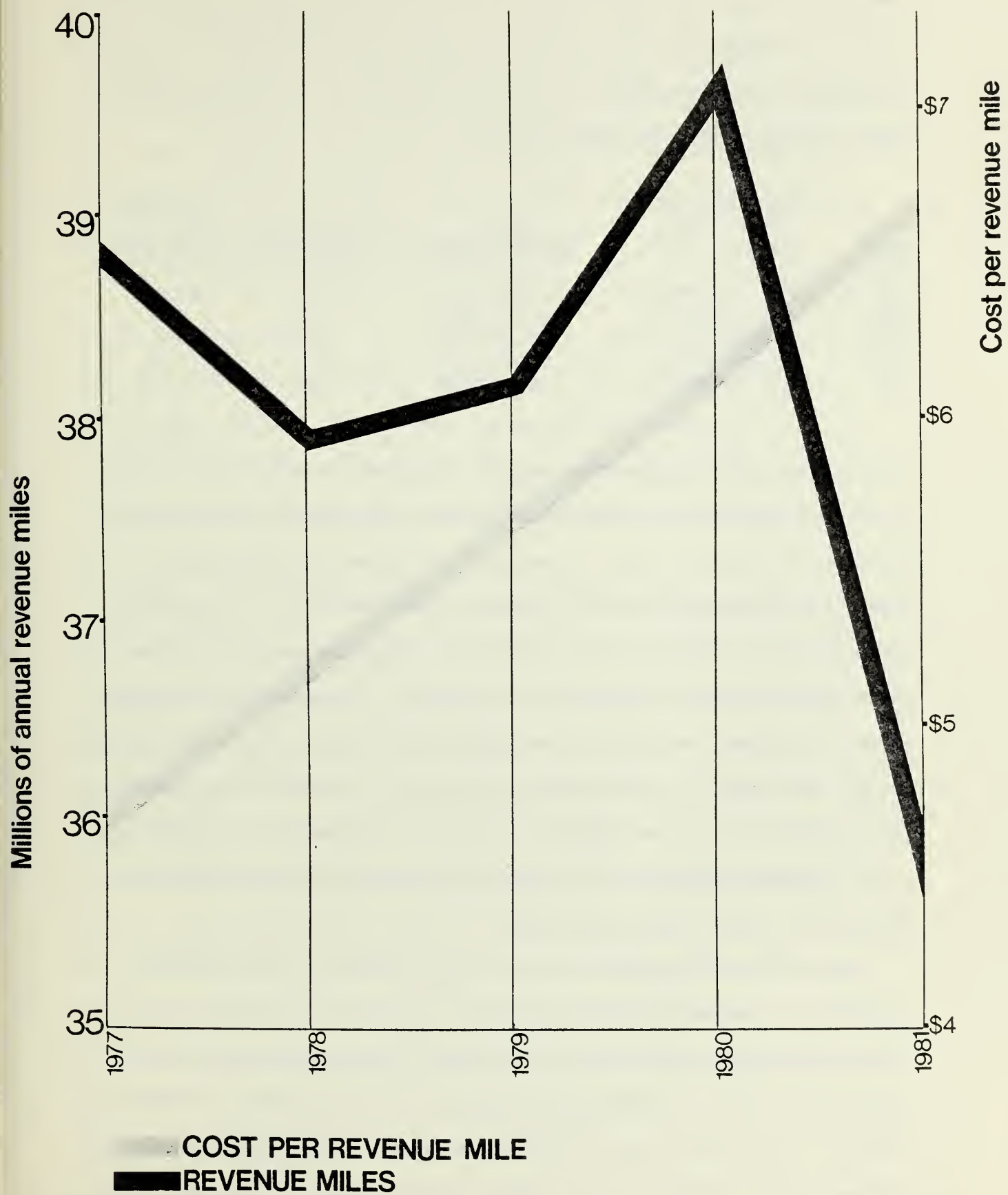
most recently been Acting EOTC Secretary and Assistant Secretary. On May 1, Mr. Locke was removed from office after questioning by the Attorney General's office and on May 3, James Carlin was named Acting Secretary of Transportation and Construction and Acting Chairman of the MBTA. He continued in those acting capacities through 1981.

General Manager O'Leary began immediately to mend fences and is generally perceived as more responsive and concerned than the two previous appointees. A priority of the new management was to halt the uncontrolled spending which characterized the first part of the year. A new Budget Director was hired. T spending during the first four months of 1981 had averaged over a million dollars a day; during the next seven months it dropped 12% to under \$900,000 per day; and even with high December spending, there was an 8% decrease from the first four to the last eight months of the year. The Advisory Board approved a supplementary budget in July, and for the first time during the King administration, the Authority did not face a December shut down. The T ended the year with a slight budget surplus.

For recognizing the realities of public sector fiscal constraints and attempting to devise ways to deal with them, General Manager O'Leary deserves a great deal of credit. However, a closer look at 1981 budget performance reveals a great many problems underlying the superficially good budget performance of 1981. And it is not clear that the General Manager has taken control over what is still widely recognized as a management nightmare.

#### Budget Performance

On the surface, 1981 budget performance looks good (Cf. tables pp.44 ff). Authority costs were under budget by \$145,459 and the 1.7% increase from



1980 can be attributed solely to increased interest costs. However, the lower operating costs must be viewed in terms of what those dollars bought. The second section of this report looks at service performance which was considerably below acceptable standards. And the chart below belies any claim that 1981 was a good year for the T.

<u>Year</u>	<u>Operating Cost (Net of Debt Service &amp; CR)</u>	<u>Annual Revenue Miles</u>	<u>Cost Per Revenue Mile</u>	<u>Increase Cost Per Revenue Mile</u>
1981	\$241,033,670	35,717,187	\$6.75	10.7%
1980	241,785,866	39,613,068	6.10	8.7
1979	214,980,897	38,295,961	5.61	9.1
1978	195,188,618	37,991,810	5.14	7.1
1977	186,734,254	38,888,458	4.80	

The most disturbing column in this chart indicates that the number of revenue miles is the lowest in 5 years (in fact it is the lowest in all years for which we have information), 10% fewer miles than were run in 1980 and 3 million miles less than five years ago. If this sharp decrease were the result of thoughtful bus route consolidation and better rapid transit headway maintenance, it would not be cause for such great concern. However, the 1981 cut totalling nearly four million revenue miles was not the result of careful transit planning. In the report on budget performance for the first half of 1981, we characterized the service cuts as "a desperate substitute for skillful management", and nothing has changed since that mid-year judgement.

While the unprecedented drop in revenue miles calls in question management judgement and decision making, the sharp increase in cost per revenue mile negates any claim of successful budget performance. Two major elements of cost per revenue mile are labor and fuel. In 1981, in contrast to previous years, there was no major increase in wage rates because of the dismissal of the 1981 arbitration panel. And fuel prices

in 1981 dropped steadily, the only such decline in the years represented.

The fact that the increase in per revenue mile costs was 18% greater than the average previous increases indicates that 1981 MBTA operations were less, not more efficient than they were in the previous four years. An in-depth analysis of fixed versus variable costs per mile would indicate which elements of cost were most responsible for the increase. Unfortunately, despite Advisory Board requests, the Authority does not categorize expenditures in this basic manner.

A great deal of effort was expended to assure that the MBTA did not repeat the experience of 1979 and 1980, when December transit service was threatened by shut-downs as a result of spending which exceeded the approved budget. That effort was successful, although it was not accomplished through increased efficiency, but through drastic reductions in service and a supplemental budget. It also appears that that effort may have been too successful.

Anyone who has managed large budgets in a complex organization knows that part of the art of budget management is the skillful and appropriate spending of money as well as careful cost control. The T ended the year with an unexpended budget of \$145,459, money which could have been productively used, although Advisory Board members would be among the last to criticize such "savings". However, in addition to this surplus, the average daily expenditure in December was nearly 25% higher than it had been in the previous seven months. If the approximately \$900,000 per day May through November spending rate had been continued through December, the unexpended budget would have been more than \$7.6 million, an amount which would have made it difficult for the T to request expanded budgets and to convince Advisory Board members of the critical need for an early supplementary budget.



MBTA officials have indicated that high December expenses are the result of December, 1981 snowstorms, absent in 1980 and 1979, and extra personnel brought on to help make year end closings as well as the usual end of year accruals. The following figures show the percent by which average daily expenditures in December exceeded the average daily expenditures in May through November during the past five years. Periods before May were omitted in all years, because 1981 expenditures were so excessive during those months and occurred before new management placed a priority on cost control.

PERCENT INCREASE IN DAILY COSTS - DECEMBER vs. MAY - NOVEMBER

1981	24.6%
1980	15.7%
1979	18.2%
1978	18.4%
1977	8.7%

The severe weather theory does not seem to be borne out by the data. In addition, there are several reasons that the normal increase in year end costs should have been lower in 1981. 1981 is the only year represented in which cost of living allowances did not significantly increase December wage costs. The layoff of 66 rapid transit door guards on 10/22/81 reduced December wages considerably. And the closing of the South Boston Power Plant in the early fall sharply reduced energy costs.

There are other indications that the Authority had a significant portion of its annual budget left for expenditure in December. For the first time in three years, the Railroad Operations Directorate reports that it overestimated (by about \$300,000) rather than underestimated December commuter rail costs. And the Commuter Rail Subsidy line also absorbed the last minute December inclusion of \$900,000 in unbudgeted project ex-

penses. Also in December, more than 125 people were switched from the capital to the operating budget.

The highly unusual increase in December costs cannot be fully explained without extensive analysis of all December expenditures compared to previous months and previous years. It is our considered judgement after a less extensive analysis that cost control measures imposed in May were reversed in December in a willful attempt to expend the full approved budget. An obvious reason for this effort was the MBTA's desire to convince the Advisory Board that it needed an even larger budget for 1982.

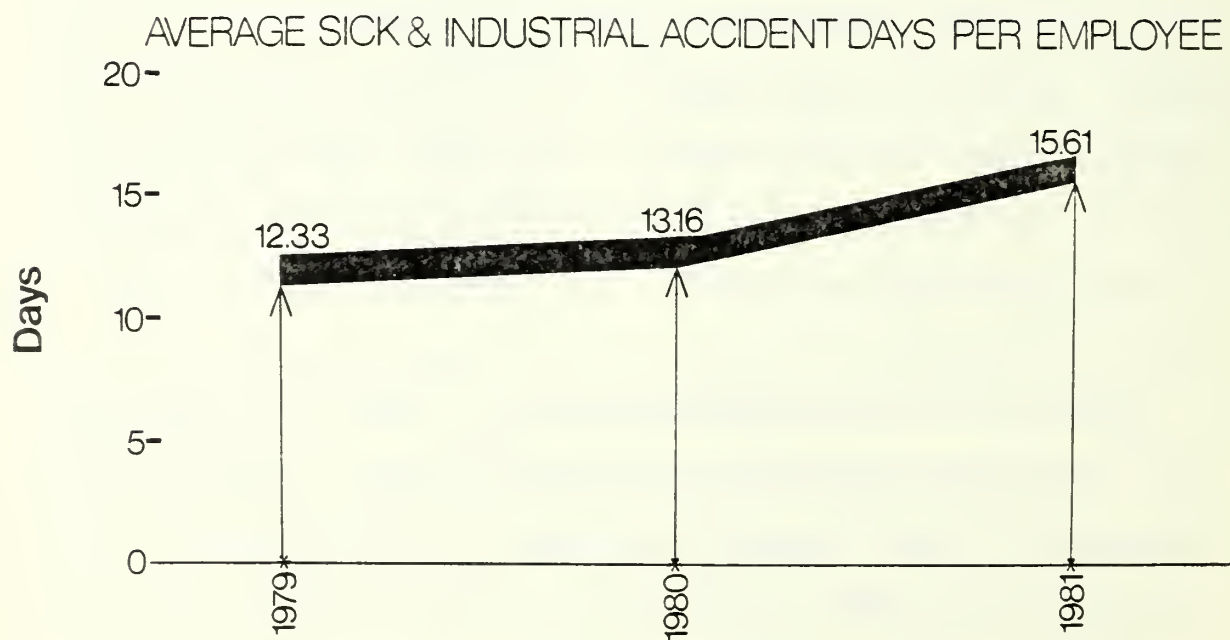
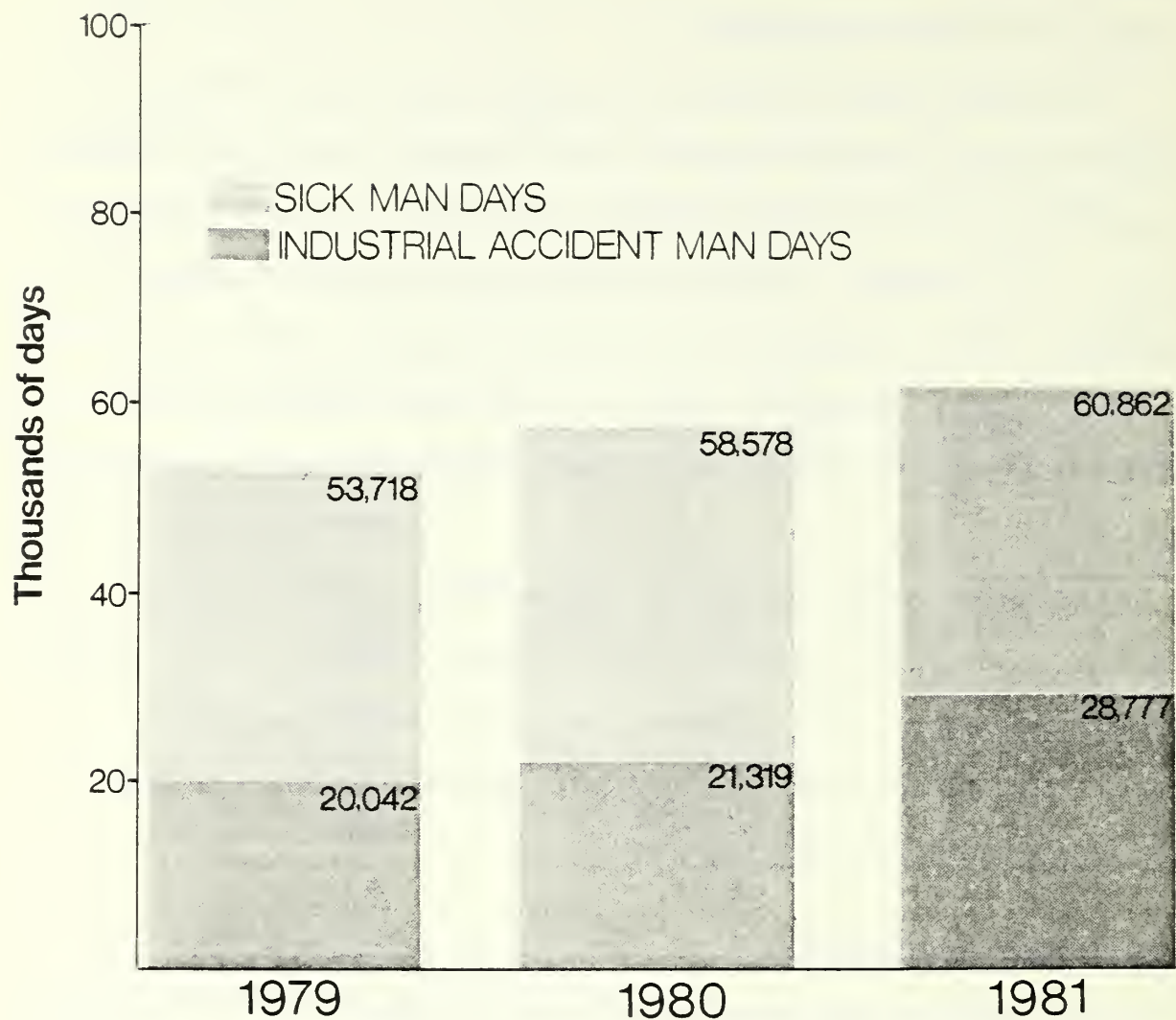
The steep increase in cost per revenue mile, the grim drop in total revenue miles and the evidence of high December spending point to wasteful transit management. They indicate a management too concerned with a public show and not concerned enough with the nuts and bolts of real efficiency and service effectiveness.

#### Overtime and Absenteeism

The Advisory Board and the public have long viewed excessive overtime as a major problem at the MBTA, and for 1981 the Advisory Board called for a strict average weekly limit on overtime dollars. In part because of the manpower decreases and a union refusal to accept overtime in April, the Authority very nearly met that limit. Overtime costs in 1981 were 41% below those of the previous year, and overtime hours per person were also lower. (cf. pp.46, 47). Nearly \$3 million was saved in this worthy effort.

However, once again apparent gains must be viewed in a broader context. Per person overtime hours decreased 27.89 hours from 1980 to 1981. During the same period, total absentee hours per person increased nearly as much - by 22.22 hours. Expensive, but at least somewhat productive





(Source: MBTA Pay 170 - Absence Hours)

overtime hours worked were very nearly replaced by totally non-productive absentee hours. Most of the absence hours would have been paid at almost double the hourly rate - half for the absent employee and half for the extra employee required to cover the absence. Total dollar costs for increased absenteeism almost wiped out savings from decreased overtime.

The MBTA reports that man-days missed because of Industrial Accident absences are the highest in at least a decade and that 15.61 days per employee were missed because of either sick or industrial accident absences. This figure is somewhat higher than our finding of 14.3 days per person. Total absenteeism increased nearly 12% from 1980 to 106,239 man-days. The Authority required approximately 443 additional employees to cover for absent workers, costing about \$14 million. The greatest increase in absentee hours per person was in the category of industrial accidents (an increase in 1981 of 45.23%).

Because the loss of control over certain categories of absenteeism is persisting in 1982, and because the increase in per person industrial accident hours grew steadily throughout 1981, management's immediate attention to this problem is long past due!

#### Manpower Levels

The Advisory Board staff performed a detailed analysis of changes in manpower levels at the T, looking closely at movements between the capital and operating payroll and at the relative personnel decreases among functions (cf. p.49 for summary detail). There was no noteworthy anomaly in the changes between capital and operating budgets until December, a month during which a 133 person decrease in capital employees matched an increase of 134 personnel paid for by the operating budget. As discussed above, it appears that this shift was made as part of an effort to spend as much money as possible in December. No other monthly change in the number of

capital employees even approaches this magnitude. The second largest was a 52 person capital budget personnel decrease in April. The April reduction was reversed over the course of the next three months.

Personnel were divided into function categories of Transportation Services, Maintenance Services, Administrative and Support Services and Construction and Railroad Operations Services. Quarterly summaries of manpower levels in each function area are given on p.50 . These figures show declines in average quarterly employees from the first to the fourth quarter of 1981 as follows:

Personnel Changes by Function - 1981

Function	Decline from 1st to 4th Quarter	
	#	%
Transportation Services	336	10.8
Maintenance Services	172	7.5
Adminstrative & Support Services	58	10.6
Total Capital	44	6.7
Total Operating	562	9.4
Total Authority	606	9.2

In each of these function categories, the largest decrease occurred between the first and second quarters, but employee levels continued to decline in each subsequent quarter. The percentage drop in Administrative and Support Services was nearly as great as that in Transportation Services, while the number of Maintenance personnel dropped less sharply. These relative quantitative changes appear reasonable. Whether or not the qualitative changes have resulted in a leaner, more capable staff is, of course, a story not told by the numbers. Professional transit staff have left the T in large numbers over the past three years; 1981 proved to be no exception.

## Revenue and Ridership

Ridership figures are derived from revenue in a manner which makes it highly probable that the figures are inaccurate. Transportation revenue for a period is divided by an average fare to yield ridership. The accuracy of ridership data thus depends on the accuracy of the average fare and on the assumption that all fares paid by passengers are received and accounted for by the Authority. The recent arrest of an Authority revenue agent on charges of "skimming", the known black market in tokens sold at discount rates to students, wide open pass gates and instances of fare evasion are but four of the indications that the T may be losing significant amounts of revenue.

In July of 1981, the MBTA predicted that the fare increase would bring an additional \$24.4 million in revenue; the Authority later revised that estimate to \$17.7 million. Actual revenue attributable to the fare increase was \$10.6 million, only 43% of original projections. The Authority clearly underestimated ridership loss which resulted from the transit price increase.

An inordinate amount of time was spent by the MBTA, the Central Transportation Planning Staff (CTPS) and by personnel in the Executive Office of Environmental Affairs in an attempt to determine ridership loss from November 1980 to November 1981. Much has been written to support various theoretical calculations, and CTPS has retroactively changed previously calculated average fares for 1980 as well as 1981. If the money expended in these efforts had been used to maintain widely malfunctioning pass reading turnstiles and to begin testing the prototype model designed for surface vehicles, the T might now have a much better system by which to collect direct ridership information and it might be much closer to compliance with Federal regulations concerning the collection and reporting of ridership statistics. UMTA does not accept ridership information derived from



revenue; the Advisory Board has harped all year on the fact that ridership derived from revenue is insufficiently reliable to use in planning for more efficient and effective service or for fine tuning a fare structure; the Secretary of Environmental Affairs has stated that there is a need "for a more accurate ridership measurement and reporting system."<sup>1</sup>

Furthermore, ridership information as derived from average fare estimates is now more confused and probably less reliable than ever. The data on page 51 uses the latest systemwide average fares as recalculated by CTPS for the periods subsequent to the 1980 fare increase. Changed estimates before that date (July 1, 1980) have not been used, because they don't intuitively make sense. Their use would show a sharp 10% increase in ridership as a result of the 1980 fare increase, an outcome not supported by either theoretical or direct information.

The figures indicate a drop in ridership after spring service cuts, a 14% drop from January to December 1981 and a 20% decrease from November 1980 to November 1981. No information on interim average fares is available for the months of August and September. There is continued erosion of ridership throughout the fourth quarter of 1981. Staff in the Executive Office of Environmental Affairs estimate that ridership figures may be inaccurate by at least plus or minus 10%. We would concur that ridership levels and changes in ridership as derived from revenue are subject to error at a significant enough level to make them almost meaningless.

Once more, we call on the Authority to give serious attention to means available for direct collection of ridership information, including the utilization and protection of the detailed information already available

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<sup>1</sup> Certification of the Secretary of Environmental Affairs on the Revised Draft Environmental Impact Report - p. 4.

through pass reading turnstiles. A first step in stemming continuing ridership loss is knowledge of where riders are - and aren't. And, of course, complete and accurate collection and accounting of all revenue is of critical importance.

#### Management Rights and Labor Relations

The largest MBTA union, the Carmen, worked through 1981 with no contract after the expiration of their previous agreement in December, 1980. After the U.S. Court of Appeals upheld Chapter 581, a statute which precludes management's bargaining collectively with respect to enumerated matters of inherent management rights, the then ongoing interest (new contract) arbitration was halted. Apparently both labor and management were surprised by the Appeal Court's decision, which has been strengthened by the U.S. Supreme Court's recent (June, 1982) refusal to consider Local 589's appeal.

The statute is far reaching, providing for no less than a revolution in the way the Authority operates. It should result in productivity gains and dollar savings which enable the MBTA to become one of the most efficient transit systems in the nation, instead of one of the least. A measure of management disarray at the Authority was the absence of any implementation plan or strategy for putting management rights provisions into effect.

When the challenges to the statute were dismissed last fall, General Manager O'Leary had been with the Authority a scant six months. The head of his implementation team, Mr. Richard Brown, Authority Budget Director, had just come on board. The relative newness of these top managers may have influenced their decision to attempt an implementation strategy which gave the union an option to share in decisions effecting the required changes. This strategy, long term, may prove to have been a wise one.



Short term, however, it has retarded the speed with which change is occurring and has apparently allowed significant numbers of union employees to remain out of touch with the realities of what must happen at the T.

Advisory Board reports on performance during 1982 will look specifically at the course of management rights implementation. As of this writing, labor relations at the Authority have deteriorated, perhaps predictably, and the continuing dispute over a new labor agreement is once more headed for arbitration after an aborted attempt to negotiate a contract.

It is unfortunate that Authority management has not been more stable during the past three years or so. We can't help but think that such stability would have allowed a quicker, more self-assured and well thought out response to the challenges which the management rights statute presents. As it is, delays and false starts have greatly diminished dollar savings; riders have yet to see any indication that the system is becoming more effective; and labor relations are strained.

#### Local Assessments

It now seems almost certain that a commitment made nearly one year ago to cap MBTA assessments to the 79 cities and towns at \$95 million will be fulfilled. That cap is contained in the budget now on Governor King's desk. Last July, in response to Advisory Board concern that the Authority was overestimating the revenue which a fare increase would bring, Acting EOTC Secretary James Carlin guaranteed that Advisory Board approval of a 1981 supplementary budget and a fare increase would not result in local assessments greater than the then estimated \$95 million. When fare increase revenue fell dramatically below projections, it became necessary to hold Mr. Carlin to his previous commitment. Both the 1982 budget and a portion of the 1982 supplementary budget were held hostage to assure that best efforts

to honor that commitment would be made.

Presuming the Governor's signature on the budget before him, the number of property tax dollars expended for mass transit should decrease, in the aggregate, by about 6.6%, welcome news for municipalities struggling with constraints on that tax resource. Because income and expenses of the Authority since May, 1982 are not yet available, it is impossible to make any judgements about what the 1982 deficit might be. The full affects of a fare decrease and service level increase beginning May 1 are not yet known, although it appears that ridership has further declined, not increased as the Authority had predicted. The expectation that Federal funds for operating assistance will continue to shrink and that a fiscal year end change for the Authority will necessitate increased state funding in fiscal year 1984 makes it imperative that the MBTA become more efficient through full implementation of management rights. And new labor agreements must reflect diminished public sector ability to pay ever increasing labor costs.

#### Commuter Rail

The Commuter Rail Sub-Committee has recently completed a report intended to alert the Board to serious problems in the financial management of commuter rail services, to report on 1981 budget and service performance and to inform the Advisory Board of the major provisions in the new contract between the MBTA and the B&M Corporation. Among its key findings are the following:

- The financial activity of the B&M's provision of passenger service and the MBTA's Railroad Operations Directorate (ROD) are dangerously insulated from public scrutiny. No final statement of expenses for 1981 has

been prepared, no detailed budget for 1982 was constructed until June, and the Authority admits that the monthly Commuter Rail Subsidy costs reported on the Net Cost of Service statement are inaccurate.

- Despite a 1979 Federal requirement and increasing pressure from UMTA, an independent audit of commuter rail financial activity has not been performed by the Authority.

- The MBTA does not independently verify expenses claimed by the B&M under its cost plus contract with the Authority. There are neither pre-audits before payments are made nor internal audits to substantiate reported expenditures.

- Financial reports are produced on an untimely basis, and formal meetings between the B&M and the MBTA on monthly activity take place, on average, nearly two months after the close of a period. Financial records do not fully detail adjustments or changes; budgets are revised to more closely match actual costs; and MBTA financial management is limited.

- Key financial management staff positions remain unfilled; some have been vacant for over a year including that of Manager of Finance - Railroad Operations. For most of the past several months, the Railroad Operations Directorate has had only one of its five budgeted financial staff. The continuing, long standing vacancies reflect the lack of priority which top MBTA officials have placed on financial management of commuter rail operations.

- A full analysis of 1981 budget performance is virtually impossible: no final statements have been completed by the MBTA; budget plans were not revised to reflect a change in method for calculating overhead; 1980 and 1981 information reports overhead or indirect costs in different line

items, and the MBTA is unable to provide the back-up information which would allow the Committee to make comparisons; there is no report explaining high December costs.

- The Commuter Rail Subsidy line is nearly \$1 million over the approved budget, in part because of the inclusion of \$900,000 in state funded, out of district projects, categorized as capital projects until year end.

- The Authority has not independently verified the actual indirect or overhead expenses incurred by the B&M in its provision of passenger services. In 1979 Arthur Anderson estimated that, properly allocated, overhead was about 10% of B&M direct costs. Yet the Authority agreed to pay 11% in 1981 and 12% in 1982 without undertaking any independent analysis of whether or not this provided the B&M with an unearned bonus of nearly \$2 million.

- Service performance statistics, including ridership, on-time performance and consist compliance (adherence to specified number of coaches per train) generally showed improvement over 1980 performance.

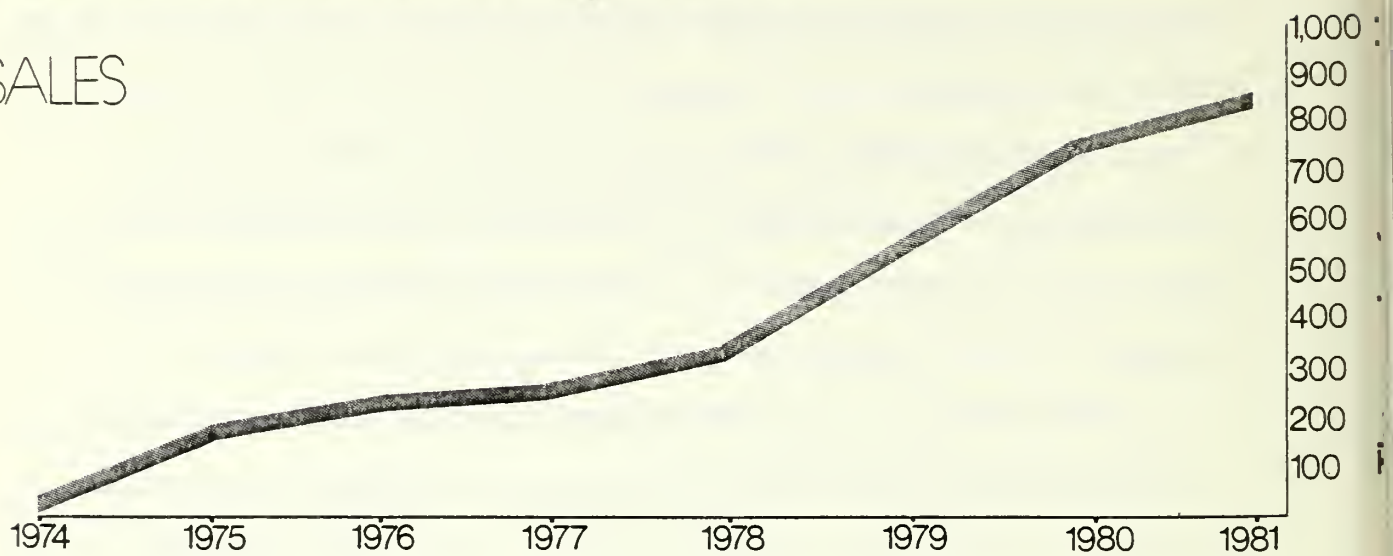
- While the February, 1982 operating agreement between the MBTA and the B&M appears to be more favorable for the Authority in some respects than the previous contract, there are significant areas in which it falls short, and its successful implementation depends in large part on vastly improved contract management on the part of the Authority.

- The MBTA has missed a critical May 31 deadline set forth in its new contract with the B&M which provided for a study of alternative liability insurance coverage. Because the present coverage mechanism may be more favorable for the B&M, its Trustees may not approve a deadline extension, leaving the MBTA liable for what could be costly excess liability coverage.

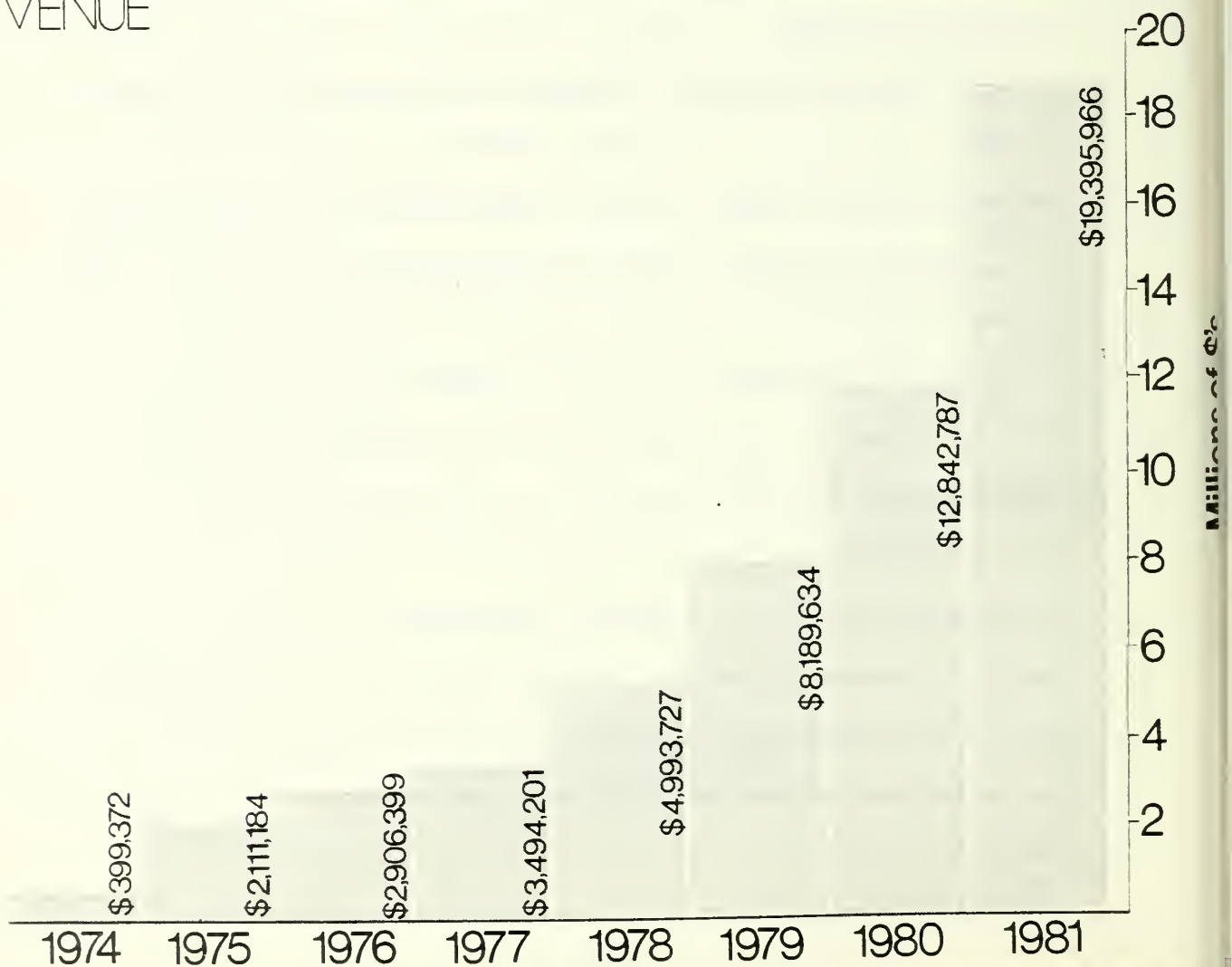


# MBTA Pass Program

SALES



REVENUE



(Source: MBTA Pass Program)

MBTA PASS PROGRAM PERFORMANCE

1981 vs. 1980

PERIODS	1981	1980	VARIANCE	
			\$	%
JANUARY				
Revenue	\$ 1,244,862	\$ 1,025,128	\$ 219,734	21.4
# Purchased	62,770	51,999	10,771	20.7
FEBRUARY				
Revenue	1,340,541	794,367	546,174	68.8
# Purchased	68,440	52,181	16,259	31.2
MARCH				
Revenue	1,318,356	855,976	462,380	54.0
# Purchased	67,074	53,666	13,408	25.0
APRIL				
Revenue	1,376,965	839,567	537,397	64.0
# Purchased	70,376	54,504	15,872	29.1
MAY				
Revenue	1,299,888	839,043	460,845	54.9
# Purchased	68,543	54,896	13,647	24.9
JUNE				
Revenue	1,247,346	768,837	478,509	62.2
# Purchased	65,860	55,195	10,665	19.3
JULY				
Revenue	1,221,372	1,067,812	153,560	14.4
# Purchased	61,747	70,515	(8,768)	(12.4)
AUGUST				
Revenue	1,429,155	1,004,295	424,860	42.3
# Purchased	71,374	68,123	3,251	4.8
SEPTEMBER				
Revenue	1,686,663	1,309,108	377,555	28.8
# Purchased	82,318	62,396	19,922	31.9
OCTOBER				
Revenue	2,492,248	1,527,328	964,920	63.2
# Purchased	80,551	71,305	9,246	13.0
NOVEMBER				
Revenue	2,504,458	1,587,540	916,918	57.8
# Purchased	81,979	74,166	7,813	10.5
DECEMBER				
Revenue	2,448,933	1,394,266	1,054,667	75.6
# Purchased	79,926	65,397	14,529	22.2
TOTAL				
Revenue	19,610,786	13,013,267	6,597,519	50.7
# Purchased	860,958	734,343	126,615	17.2





## 1981 MBTA SERVICE PERFORMANCE

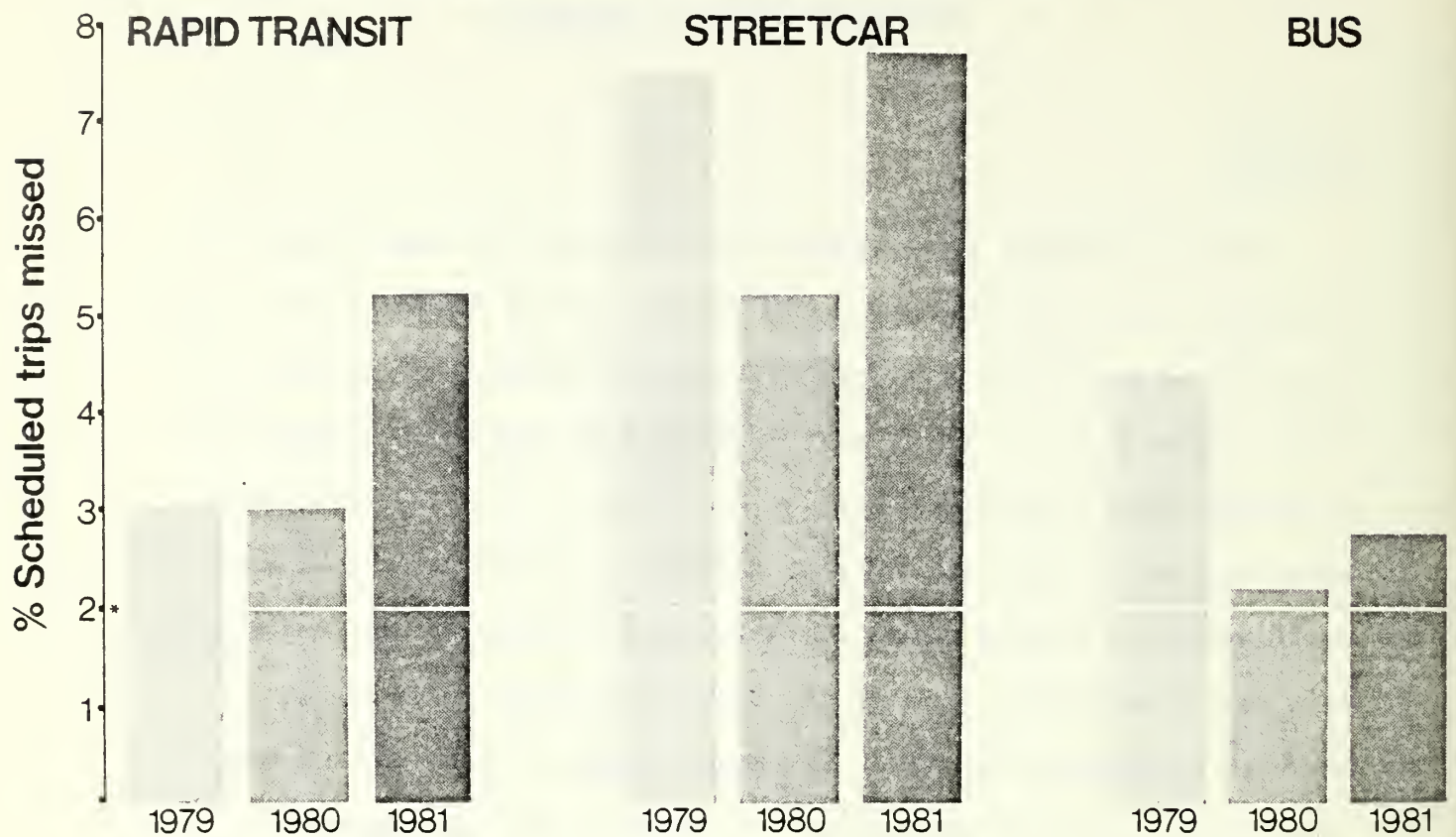
### OVERVIEW

All of the MBTA's transportation services, with the sole exception of commuter rail, provided much worse service in 1981 than in 1980. Missed trips are up nearly 31% over 1980 with employee absenteeism causing over 30,000 missed trips -- up 67% over 1980 and 218% over 1979. Despite new equipment, vehicle unavailability was up 60% over 1980. Service was cut back on almost every route, in most instances with little or no regard to ridership or revenue levels or public need. Passenger data collection is almost nonexistent, although the technology exists to implement thorough passenger tabulation. Management seems to have lost control of key aspects of service delivery, including on-time performance, maintenance of facilities and equipment, and employee discipline. Although some lines have missed greater numbers of trips in a previous year (1979), 1981 is probably the worst year in terms of the quality of service actually delivered. Both buses and trains are in very poor physical shape, something to be expected in the absence of a preventive maintenance program. Thousands of trips ran late often rendering the MBTA system inadequate as a reliable alternative to the private automobile.

The following pages describe MBTA service performance by line with detailed tables and exhibits illustrating the decline in MBTA performance during 1981. The Advisory Board/MBTA 2% missed trip standard is used to compare service delivery to both 1980 and 1979.

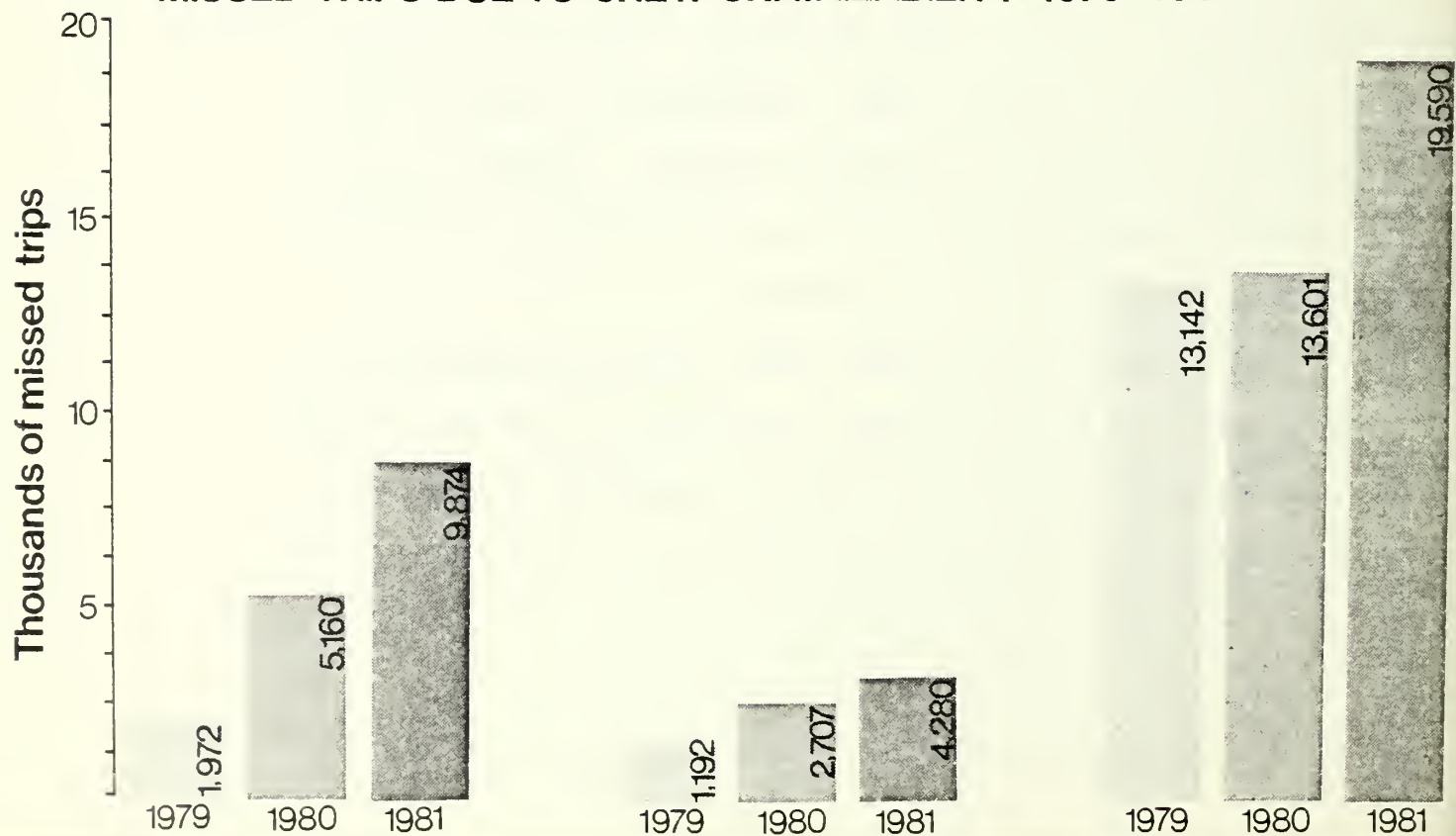


# SERVICE PERFORMANCE



(Source: MBTA Daily Service Reports)

## MISSED TRIPS DUE TO CREW UNAVAILABILITY 1979-1981



## RAPID TRANSIT LINES

During 1981, all of the rapid transit lines provided lower quality of service than in 1980. Based on the number of scheduled trips missed, the Orange Line provided the best level of service with only 1.8% of scheduled trips missed. The Red Line clearly provided the worst level of service with 7.0% of all scheduled trips missed during the period. The Blue Line posted relatively satisfactory results with 2.5% of scheduled trips missed.

Although scheduled vehicle miles for the three rapid transit lines are down 3.5% from 1980, the incidence of missed trips is up 67.6% over 1980, a considerable reduction in service quality. The major cause of missed trips in 1981 continued to be crew unavailability. Nearly 10,000 missed trips were the result of there being no crew available. This cause of missed trips is up 94% over 1980 and nearly 400% over 1979. Missed trips due to crew unavailability result from unauthorized absence, extended breaks, or any of a multitude of possible diversions from normal work schedules. The dramatic increase in the number of missed trips due to crew unavailability is cause for great concern.

On January 3, 1981, the MBTA closed three rapid transit stations. Stations closed were Symphony, Bowdoin, and Boylston. On January 31, 1981, Harvard Square station on the Red Line was permanently closed and the Harvard Holyoke temporary station was opened. This station will remain in service through June, 1981 when the new Harvard station will open. In February 1, 1981, Sunday service on the Blue Line was cut back to Orient Heights and on the Orange Line to Wellington. Buses were provided for service to Wonderland and Oak Grove. February 6, 1981, saw the introduction into revenue service of the Orange Line's new Hawker Siddeley cars. These cars were ordered in 1976 to provide the new S.W. Corridor with compatible new equipment. They have been well received by passengers



MBTA SERVICE PERFORMANCE  
1981

	Scheduled Trips	Scheduled Trips		Causes as a % of Trips Not Run						
		#	Not Run %	Veh N/A	Crew N/A	D.A. Veh.	Head- way	Weath. Accident	Misc.	
RED LINE										
1st Quarter	47,616	4,784	10.0	37.3	22.2	16.2	23.4		0.2	
2nd Quarter	46,308	3,390	7.3	41.0	23.3	18.7	15.2		1.5	
3rd Quarter	46,326	2,162	4.6	15.4	27.9	33.3	22.2		1.0	
4th Quarter	44,028	2,560	5.8	24.1	19.4	29.1	23.5		3.5	
TOTAL 1981	184,278	12,896	7.0	29.6	23.3	24.4	21.2		1.6	
1980	193,564	9,798	5.1	22.1	26.5	20.7	28.6		2.2	
1979	191,162	8,505	4.3	16.5	11.7	19.3	49.5		2.9	
ORANGE LINE										
1st Quarter	33,024	614	1.8	6.8	51.9	1.6	17.2	5.22	17.1	
2nd Quarter	31,242	816	2.6	8.5	72.5	5.6	5.6		7.6	
3rd Quarter	29,349	456	1.5	3.9	80.0	1.7	6.8		7.4	
4th Quarter	30,072	401	1.3	11.7	68.1	1.2	3.2	2.9	12.7	
TOTAL 1981	123,687	2,287	1.8	7.7	67.7	3.0	8.7	1.9	11.0	
1980	124,134	1,067	0.9	8.2	67.7	0.7	7.5		15.9	
1979	125,418	1,440	1.1	3.2	2.0	2.0	71.3	0.8	19.7	
BLUE LINE										
1st Quarter	35,568	1,289	3.6	1.0	81.8	5.2	0.9		10.8	
2nd Quarter	33,384	582	1.7	2.0	79.4	1.3	2.4		15.1	
3rd Quarter	31,392	794	2.5		59.9	3.0	28.7		8.3	
4th Quarter	33,072	656	1.9	0.6	46.0	4.5	39.9		8.8	
TOTAL 1981	133,416	3,321	2.5	0.9	69.1	3.9	15.5		10.6	
1980	134,516	2,678	2.0	1.3	69.2	7.5	7.2		14.7	
1979	137,776	3,473	2.5	8.5	25.5	15.0	12.0		28.6	

(Source: MBTA Daily Service Reports)

and are performing quite well. On April 5, 1981, rapid transit Sunday service hours were changed to 6:00 AM to 11:00 PM, a 22% service reduction. The most vocal concern about this cutback was aired by the health care community which depends on the MBTA for transportation of support personnel, particularly early in the morning and very late at night including Sunday. On June 20, 1981, the Dorchester Branch of the Red Line was closed for a \$15 million reconstruction program. Included in the program to improve the Red Line was the installation of the continuous welded rail on concrete ties, a new third rail, and a cab-signal system.

#### STREETCAR LINES

Streetcar service performance during 1981 failed to improve over 1980's poor level of service. Missed trips were up almost 50% with crew-related missed trips increasing more than 140%. Green Line streetcar service was restructured on January 31, 1981 with the opening of the Commonwealth Avenue line to Boston College. Boston College cars were routed to Lechmere, and Cleveland Circle PCC's were short-turned at Park Street. The Arborway-Huntington Avenue line remained closed beyond Brigham Circle for an additional 12 months due to an insufficient number of available revenue vehicles and, according to the MBTA, an inadequate level of operating funds. Symphony station remained closed despite the fact that Brigham Circle trains must pass through the station. The MBTA's assertion that the station closing was a cost-saving measure (as there would be no collector needed) is hardly valid, since revenue could have been collected on-board the Green Line vehicles as had been the practice in the outbound direction at Symphony. This frustrating and unnecessary inconvenience ended on June 26, 1982 when Symphony station reopened along with full service along Huntington



Avenue to Arborway. The Mattapan-Ashmont streetcar line (Red Line) was closed in June for total reconstruction. The project included the installation of continuous welded rail with subgrade, station and power system improvements.

The quality of service on the Green Line remains a serious concern. Overcrowding is becoming acute particularly during rush periods when most of the LRV fleet is required for revenue service. Although the LRV fleet was expanded to 115 during 1981, mechanical deficiencies caused a higher number of missed trips than in 1980. While equipment availability was a serious problem during 1981, it stands to become more serious during the second half of 1982 when full service will be operating along all four branches of the Green Line.

The proper sequence of trains is important in providing efficient passenger carrying capacity along each of the Green Line branches. Each of the Green Line branches is scheduled and dispatched as a separate line, even though they all service the spine of the MBTA system -- the Green Line Central Subway. Because they are operated individually, a disruption of service along one branch will foul the even spacing of trains in Central Subway where adequate passenger carrying capacity is needed most. It is suggested that the MBTA seriously consider changing the operating policy along the Green Line with more emphasis on service delivery along the Central Subway between Government Center and Kenmore. This is especially important because the MBTA now estimates it will take 5 to 8 more years before the long-promised additional LRV cars will be in service.

MBTA SERVICE PERFORMANCE  
1981

	Scheduled Trips	Scheduled Trips		Causes as a % of Trips Not Run					
		Sched. Trips	Not Run #	%	Veh N/A	Crew N/A	D.A. Veh.	School Accident	Misc.
STREETCAR LINES									
inc. Mattapan Line*									
1st Quarter	62,416		3,792	6.0	43.3	44.0	5.1		7.3
2nd Quarter	58,824		4,639	7.8	24.8	64.1	6.9	0.1	3.8
3rd Quarter	56,847		6,531	11.4	24.0	63.2	10.3	1.8	0.5
4th Quarter	46,343		2,417	5.2	23.7	63.8	8.6		3.8
TOTAL 1981	224,431		17,379	7.7	29.9	57.9	7.6		4.6
1980	228,922		11,669	5.1	43.7	35.7	12.2	0.9	9.0
1979	313,212		23,403	7.5	64.1	12.1	9.5	2.1	12.0
ARBORWAY-BARTLETT									
1st Quarter +	97,764		2,094	1.9	10.3	37.5	16.7	19.1	15.3
2nd Quarter +	80,700		1,632	2.0	2.2	31.1	19.1	43.0	4.0
3rd Quarter +	96,478		2,935	3.0	1.7	75.3	15.6	0.1	7.2
4th Quarter	93,480		2,161	2.3	11.6	36.0	27.2	14.2	9.2
TOTAL 1981	368,422		8,824	2.3	6.2	48.5	19.3	16.1	9.0
1980	362,055		7,014	1.9	9.7	38.6	18.5	18.1	13.8
1979	338,106		16,325	4.8	62.4	7.3	12.2	9.0	6.4

\* Brigham Circle runs not included in causes of missed trips

+ Mattapan Line closed for reconstruction

(Source: MBTA Daily Service Reports)



## BUS LINES

Service performance at both urban and suburban garages has substantially decreased, despite an 8% reduction in the number of scheduled trips during 1981. The incidence of missed trips increased by more than 30% over 1980 with crew availability being the major cause. Employee absenteeism has increased by more than 100% in each of the MBTA's seven bus rating stations. The Bennett Rating Station, including the former Somerville Garage, was particularly plagued by employee-induced missed trips with a dramatic 415% increase over 1980.

Bus service was particularly affected by service cutbacks during 1981. Nearly 18% of the MBTA's bus service was slashed in Spring, 1981 with urban bus lines suffering the most severe service changes. There were some marginal improvements in the level of service with the advent of the Summer, 1981 timetable; however, none of the traditional beach service was offered. The most disturbing issue concerning the MBTA's Spring, 1981 cutbacks is the criteria used to make the service changes. Cutback management is becoming commonplace in the transit industry and great care has been taken to carefully develop precise standards for ridership and revenue as one of the criteria for decision making. At the MBTA neither the standards nor the data to apply those standards exist, suggesting that the bus service cutbacks were at best random. Over the year service gradually began to resemble the route structure and timetable that previously existed, so that by December, 1981, nearly all of the services that were cut during the Spring had been restored. However, certain areas had not been restored raising the ire not only of local officials, but certainly of those passengers who have had to drastically alter their travel patterns to match the ill-planned timetables now in effect. These services include, but are

not limited to, Route 72 weekend service in Cambridge, Route 95 Sunday service through Medford, and evening service on a number of routes through Somerville.

Bus maintenance has reached the point where the equipment is considered adequate for revenue service if it can accelerate and stop, leaving such items as lights, broken windows, missing door leafs, excessively dirty interiors, and accumulation of exhaust fumes as solely aesthetic items not worthy of maintenance effort. Ridership levels are sensitive not only to fare levels and bus frequencies, but also to quality of maintenance. Greater Boston taxpayers as well as MBTA riders must question whether current MBTA management is willing to protect a substantial taxpayer investment in bus and rail equipment.

Diligent efforts must be applied to MBTA bus service performance, preventive maintenance, and employee discipline. Otherwise, continued ridership erosion will occur. Certainly Massachusetts taxpayers deserve more from the MBTA than short-sighted management decisions about service levels and clearly sub-standard service delivery caused by lack of proper maintenance and lack of employee effort.

It is becoming clear that a major cause of the breakdown of MBTA service is the deterioration of MBTA employee morale, including employee attitude, diligence, commitment to performing essential public service, respect for passengers as well as other MBTA employees, and pride in the job. A major impediment to efficient service is an inefficient workforce that wants as little as possible to do with transporting and informing the passenger. It is unfortunate that so many on a workforce that is paid so well (yet demands more) cannot do much more than operate a vehicle and snarl at revenue paying passengers. Also unfortunate is the fact that MBTA management is so ineffective in controlling such irreverence at a time when ridership has reached record lows.



MBTA SERVICE PERFORMANCE

1981

	Scheduled Trips	Scheduled Trips		Causes as a % of Trips Not Run						
		#	Not Run	Veh	Crew		D.A.		Weath.	
					N/A	N/A	Veh.	School	Accident	Misc.
ALBANY ST.										
CABOT										
1st Quarter	152,570	9,414	6.2	43.6	14.5	33.9	3.8		---	4.2
2nd Quarter	120,648	2,422	2.0	1.3	42.7	42.7	13.6			6.7
3rd Quarter	154,425	5,174	3.4	0.1	83.7	16.1	--			---
4th Quarter	147,690	3,017	2.0	2.0	55.7	42.1	--		---	0.1
TOTAL 1981	595,333	20,030	3.5	21.0	42.0	31.6	3.4		---	2.0
1980	594,880	19,160	3.2	16.0	31.7	44.1	7.1			1.2
1979	561,164	45,724	8.1	64.3	11.1	20.1	4.3		0.1	0.1
BENNETT ST.										
SOMERVILLE										
1st Quarter	63,066	6,048	9.6	70.9	9.6	8.8	2.7		0.5	8.1
2nd Quarter	51,742	923	1.8	5.2	30.9	38.0	16.7			9.1
3rd Quarter	52,678	899	1.7	0.2	49.2	40.5				10.1
4th Quarter	50,970	959	1.9	0.2	51.0	37.4	0.2		0.4	10.9
TOTAL 1981	218,406	8,828	4.0	49.8	19.5	18.2	0.2		3.6	8.7
1980	239,982	5,305	2.2	3.7	4.7	6.7	1.6		0.1	4.0
1979	258,413	3,530	1.4	34.1	12.1	31.5	8.6		0.5	13.2
FELLSWAY										
CHARLESTOWN										
1st Quarter	106,712	3,071	2.9	34.1	13.0	21.7	18.5			12.6
2nd Quarter	67,663	930	1.4	0.1	27.3	28.9	33.9			9.7
3rd Quarter	67,919	1,540	2.3		78.1	19.9				1.9
4th Quarter	68,180	1,374	2.0	0.2	43.0	21.3	13.8			21.8
TOTAL 1981	310,424	6,914	2.2	15.2	35.4	22.2	15.6			11.7
1980	410,635	7,879	2.0	14.8	23.4	32.1	16.9			8.8
1979	399,337	1,233	3.1	54.7	5.8	24.4	13.9			1.2

(Source: MBTA Daily Service Reports)



MBTA SERVICE PERFORMANCE  
1981

	Scheduled Trips	Scheduled Trips Not Run		Causes as a % of Trips Not Run						
		#	%	Veh N/A	Crew N/A	D.A. Veh.	School	Weath. Accident	Misc.	
LYNN										
1st Quarter	35,416	295	0.8	10.0	28.0	68.5			2.1	
2nd Quarter	39,439	1,006	2.5	2.2	56.3	29.2	0.1		0.7	
3rd Quarter	39,742	632	1.5	2.4	43.2	50.9			3.5	
4th Quarter	40,290	815	2.0	2.3	36.2	39.8	18.2		3.2	
TOTAL 1981	154,887	2,750	1.7	15.2	35.3	22.2	15.5		11.6	
1980	133,988	1,868	1.4	1.7	26.5	49.3	10.1	0.7	11.4	
1979	147,648	3,776	2.6	52.0	4.8	32.7	10.2		0.4	
QUINCY										
1st Quarter	44,764	675	1.5	2.8	30.2	40.1	5.3	0.2	20.8	
2nd Quarter	36,590	541	1.4	1.1	26.1	21.5	51.0		0.1	
3rd Quarter	36,093	337	0.9	0.4	46.6	52.6			0.9	
4th Quarter	36,180	986	2.7	0.4	57.7	14.6		25.2	1.9	
TOTAL 1981	153,447	2,539	1.6	1.2	42.2	27.8	22.1		6.4	
1980	162,369	2,300	1.4	17.7	24.85	48.5	1.6	4.4	2.7	
1979	165,388	2,313	1.4	51.6	7.6	31.8	6.5		2.5	

(Source: MBTA Daily Service Reports)

## TRACKLESS TROLLEY LINES

The MBTA's trackless trolley lines continued to provide the best service on the MBTA system. During 1981, the trackless trolley line to Watertown Square from Harvard/Brattle was converted to a bus operation on a temporary basis while the DPW reconstructs Mount Auburn Street. Route 73 trackless trolleys to Waverly Square will run Monday to Friday only for the duration of the DPW project. Buses now provide weekend service. The North Cambridge route will continue to operate separately from the Watertown/Waverly lines until the new Harvard Station and bus tunnel is completed in 1984.

## COMMUTER RAIL-NORTHSIDE

1981 commuter rail ridership on Northside routes declined by more than 5% with the most notable ridership drops occurring on the New Hampshire main line (9.1%) and the Fitchburg main line (8.0%). These declines can be attributed, in part, to cutbacks in service and major trackwork which had affected each Northside route, particularly the New Hampshire and Fitchburg main lines.

Due to equipment constraints, certain peak hour trains were combined and non-essential off-peak services were eliminated. In May, 1981, all of the TATOAs formerly providing Northside service were returned to Toronto. In addition, 32 Budd RDCs were sent to Boise, Idaho for complete rebuilding. The service reductions took place on February 1, 1981 and again on May 3, 1981.

Service was discontinued on the Woburn Branch on January 30, 1981 primarily as a cost-saving measure and partly in response to declining ridership. At the request of the New Hampshire Transportation Authority,

MBTA SERVICE PERFORMANCE  
1981

	Scheduled Trips	Scheduled Trips Not Run		Causes as a % of Trips Not Run					
		#	%	Veh N/A	Crew N/A	D.A. Veh.	School	Weather Accident	Misc.
1st Quarter	32,320	341	1.0	63.0	113.0	84.0			81.0
2nd Quarter	14,394	182	1.2	2.5	100.0	66.0			23.5
3rd Quarter	15,122	109	0.7		50.5	39.5			19.5
4th Quarter	14,820	227	1.5		66.0	22.9		0.8	10.1
TOTAL 1981	76,656	865	1.1	0.2	48.2	33.6		0.2	17.5
1980	120,765	1,341	1.1	0.4	31.0	48.1			19.8
1979	104,908	1,339	1.3	2.9	8.9	30.4		1.0	56.8
<hr/>									
1st Quarter	116,208	6,687	5.8	27.8	36.5	12.8	18.5	0.5	3.9
2nd Quarter	110,934	4,752	4.3	31.0	38.8	14.5	11.4		4.3
3rd Quarter	107,067	5,225	4.8	15.1	46.6	18.0	14.1		3.2
4th Quarter	107,172	6,034	5.6	20.5	43.3	16.4	14.6	0.2	4.8
TOTAL 1981	441,381	22,698	5.1	25.5	43.5	13.7	12.6	0.1	4.3
1980	450,701	13,543	3.0	16.8	38.1	16.2	22.6		5.7
1979	454,356	13,418	3.0	13.3	14.7	16.8	42.4	0.3	12.4

TRACKLESS  
TROLLEY

TOTAL  
RAPID TRANSIT

(Source: MBTA Daily Service Reports)

MBTA SERVICE PERFORMANCE  
1981

	Schedu- led Trips	Scheduled Trips		Causes as a % of Trips Not Run					
		#	Not Run %	Veh		Crew		D.A. Headway & Weath.	
				N/A	N/A	N/A	N/A	Veh.	School Accident Misc.
TOTAL BUS									
(Inc. Trackless Trolley)									
1st Quarter	564,752	22,276	3.9	44.0	16.2	24.1	6.8	0.1	8.53
2nd Quarter	595,328	7,819	1.3	1.8	38.2	31.6	24.4		3.8
3rd Quarter	263,935	11,116	4.2	35.3	32.5	24.3	5.1		2.8
4th Quarter	451,156	9,539	2.1	3.5	47.7	31.7	9.0	0.4	1.0
TOTAL 1981	1,875,575	50,751	2.7	20.2	38.6	26.2	8.6	0.1	6.0
1980	2,045,022	44,594	2.1	19.0	30.5	32.9	11.4	0.6	8.7
1979	1,075,053	85,339	4.3	11.5	15.4	16.2	1.6	55.2	
TOTAL									
AUTHORITY									
1st Quarter	711,056	32,413	4.6	40.8	22.7	20.1	4.0	0.2	7.3
2nd Quarter	580,934	17,028	2.9	14.6	41.7	22.7	3.8		3.6
3rd Quarter	601,406	12,966	2.1	26.4	36.4	21.6	10.7	0.1	4.8
4th Quarter	605,074	15,573	2.5	10.1	46.0	25.8	11.4	0.3	6.2
TOTAL 1981	2,541,387	77,981	3.1	22.0	40.3	21.8	9.9	0.1	5.5
1980	2,696,810	59,607	2.2	18.0	31.5	28.3	13.7	0.5	7.8
1979	2,637,625	98,757	3.7	53.4	9.9	20.1	11.9	0.1	4.2

(Source: MBTA Daily Service Reports)

service beyond Lowell, MA to Concord, NH was discontinued on February 28, 1981. A UTU strike on February 12, 1981 shut down the entire commuter rail system. Fare increases took place on March 15 and July 15.

Crowded conditions and ride quality should both improve during 1982 as the rebuilt Budd RDC's return to revenue service as push-pull cars. Track and signal rehabilitation will continue along the Eastern, Merrimack Valley, and New Hampshire main lines well into 1982 and should result in faster trip times and more reliable schedules.

On-time performance for Northside routes reflected the high level of construction activity that took place. Most of the delays were confined to non-rush hour service. The average for 1981 was 89.0%, up from 84.0% in 1980.

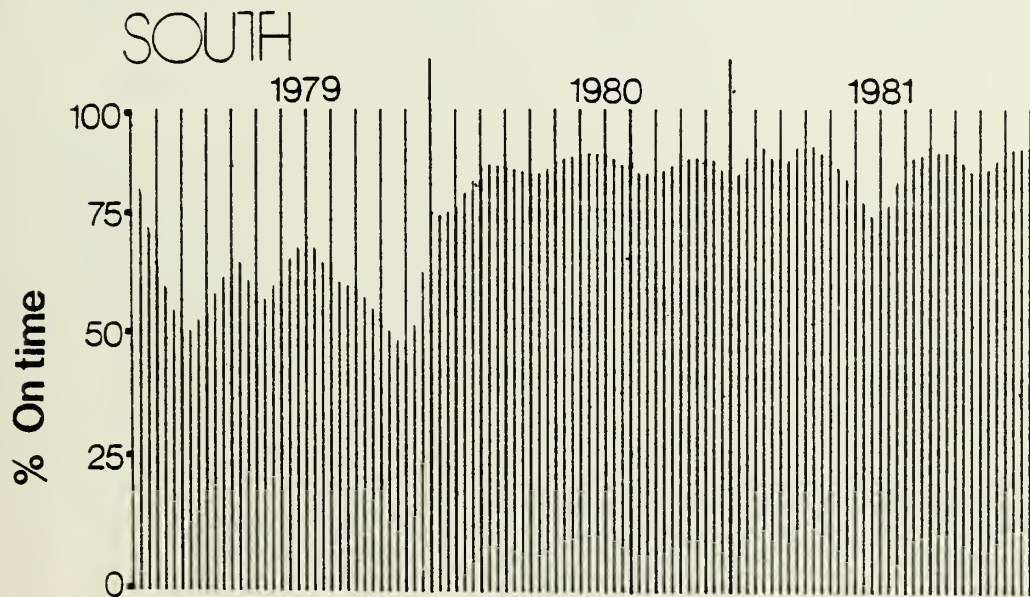
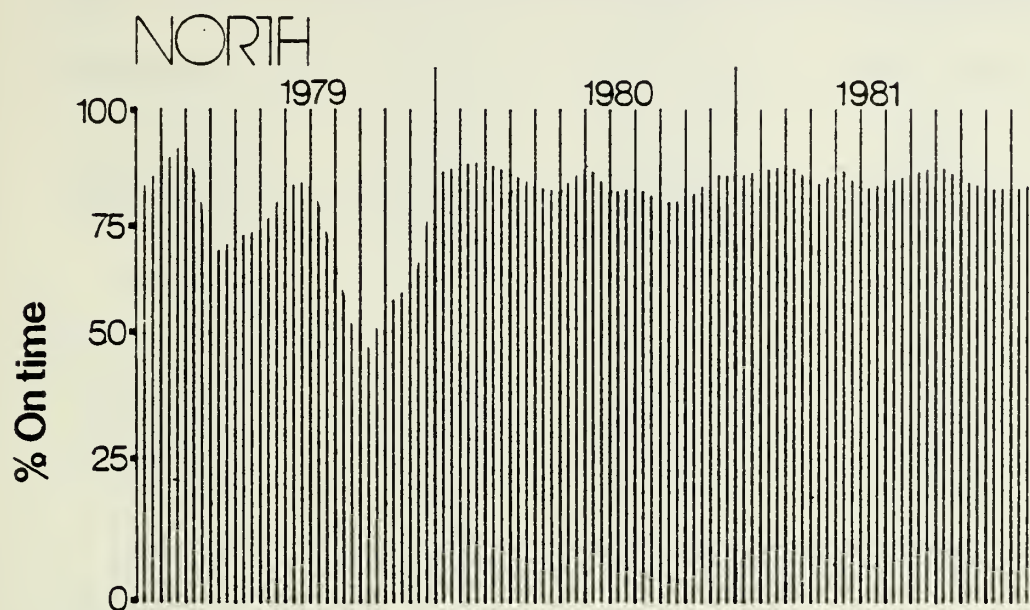
#### COMMUTER RAIL-SOUTHSIDE

1981 Southside ridership was up 4% over 1980 with the largest increase occurring in the Franklin Branch at 9%. Southside routes were not so severely affected by major construction work as the Northside routes were. The Shore Line experienced a slight decrease in ridership during the third quarter as Amtrak-related trackwork resulted in single track operation. Both the Federally-funded Northeast Corridor Improvement Project and the MBTA's Southwest Corridor Project will have a tremendous impact on Southside service upon their completion in the mid-1980's. Considerably higher speeds as well as a more modern signal system will mean faster and more reliable service.

During the period, mid-day service was instituted along the Boston and Albany main line to Framingham. A major rehabilitation project was implemented with the goal of installing continuous welded rail and reverse signalling to improve the joint operation of MBTA commuter trains and



# Commuter Rail On-time Performance





Conrail freight trains. At the direction of the Rhode Island Department of Transportation, service beyond Attleboro to Pawtucket and Providence, Rhode Island was discontinued February 28, 1981. Service to West Natick will begin in late 1982, and new service is planned for South Attleboro in 1983.

On time performance for Southside routes was 92% in 1981, up from 89% in 1980.

COMMUTER RAILROAD  
BOSTON & MAINE R.R. - SOUTHSIDE ROUTES

TOTAL PASSENGERS IN AND OUT OF BOSTON BY ROUTE

ROUTE	1981	1980	Increase/(Decrease)	
			#	%
FRAMINGHAM				
1st Quarter	177,451	165,083	12,368	7.4
2nd Quarter	179,863	171,549	8,314	4.8
3rd Quarter	170,029	166,932	3,097	1.8
4th Quarter	<u>176,546</u>	<u>170,410</u>	<u>6,136</u>	<u>3.6</u>
TOTAL YEAR	703,889	673,974	29,915	4.4
FRANKLIN BRANCH				
1st Quarter	294,658	265,373	29,285	11.0
2nd Quarter	297,046	282,731	14,080	4.9
3rd Quarter	300,170	277,220	22,950	8.2
4th Quarter	<u>320,433</u>	<u>285,389</u>	<u>35,044</u>	<u>12.2</u>
TOTAL YEAR	1,212,307	1,110,713	101,359	9.1
PROVIDENCE/STOUGHTON				
1st Quarter	462,454	445,271	17,183	3.8
2nd Quarter	462,271	454,964	7,307	1.6
3rd Quarter	443,161	459,774	(15,813)	(3.4)
4th Quarter	<u>466,047</u>	<u>462,244</u>	<u>3,803</u>	<u>0.8</u>
TOTAL YEAR	1,834,773	1,822,253	12,520	0.7
TOTAL SOUTHSIDE ROUTES				
1st Quarter	934,563	875,727	58,836	6.7
2nd Quarter	939,180	909,244	29,701	3.2
3rd Quarter	914,160	903,926	10,234	1.1
4th Quarter	<u>963,026</u>	<u>918,043</u>	<u>44,983</u>	<u>4.9</u>
TOTAL YEAR	3,750,929	3,606,940	143,754	4.0

(Source: Boston & Maine Accounting Dept.)

BOSTON & MAINE RAILROAD

SOUTHSIDE ROUTES

TOTAL PASSENGERS IN AND OUT OF BOSTON<sup>1</sup>

	<u>1981</u>	<u>1980</u>	<u>Increase/(Decrease)</u>	
			<u>#</u>	<u>%</u>
January	325,947	295,395	30,552	10.3
February	275,307	283,471	(8,164)	2.9
March	333,309	296,861	36,448	12.3
April	321,996	296,924	25,072	8.4
May	295,983	308,758	(11,775)	(3.8)
June	320,201	303,562	16,639	5.2
July	311,974	303,240	8,734	2.9
August	297,103	290,292	6,811	2.4
September	305,083	310,394	(5,311)	(1.7)
October	315,110	330,429	(15,319)	(4.6)
November	295,988	272,671	23,317	8.6
December	351,929	314,943	36,986	11.7
TOTAL	3,750,930	3,606,940	143,990	3.9

TOTAL PASSENGER REVENUE<sup>2</sup>

	<u>1981</u>	<u>1980</u>	<u>Increase/(Decrease)</u>	
			<u>\$</u>	<u>%</u>
January	\$ 439,056	\$ 354,469	\$ 84,587	19.3
February	380,921	320,949	59,972	15.7
March	442,884	344,829	98,055	22.1
April	401,302	332,928	68,374	17.0
May	382,157	328,268	53,889	14.1
June	438,547	374,391	64,156	14.6
July	421,133	328,847	92,286	21.9
August	453,753	351,110	102,643	22.6
September	484,810	465,057	19,753	4.1
October	476,554	424,429	52,125	10.9
November	483,083	331,881	151,202	31.3
December	483,812	436,380	47,432	9.8
TOTAL	\$5,288,012	\$4,393,528	\$894,474	16.1

1 - Source: Boston & Maine Accounting Department

2 - Source: MBTA Railroad Operations Directorate

COMMUTER RAILROAD  
BOSTON & MAINE R.R. - NORTHSIDE ROUTES

TOTAL PASSENGERS IN AND OUT OF BOSTON BY ROUTE

ROUTE	1981	1980	Increase/(Decrease)	
			#	%
IPSWICH/ROCKPORT				
1st Quarter	479,847	479,802	45	---
2nd Quarter	485,060	497,150	(12,090)	(2.4)
3rd Quarter	475,750	503,113	(27,363)	(5.4)
4th Quarter	<u>482,868</u>	<u>485,352</u>	<u>(2,484)</u>	<u>(0.5)</u>
TOTAL YEAR	1,923,525	1,965,417	(41,892)	(2.1)
READING/HAVERHILL				
1st Quarter	298,260	326,157	(27,897)	(8.5)
2nd Quarter	287,617	330,228	(42,611)	(12.9)
3rd Quarter	278,760	295,359	(16,599)	(5.6)
4th Quarter	<u>310,467</u>	<u>293,105</u>	<u>17,362</u>	<u>5.8</u>
TOTAL YEAR	1,175,104	1,244,849	(69,745)	(5.6)
WOBURN/LOWELL/CONCORD, N.H.				
1st Quarter	308,226	321,654	(13,428)	(4.1)
2nd Quarter	290,217	347,405	(57,188)	(16.4)
3rd Quarter	282,773	322,210	(39,437)	(12.2)
4th Quarter	<u>316,775</u>	<u>327,071</u>	<u>(10,296)</u>	<u>(3.1)</u>
TOTAL YEAR	1,197,991	1,318,340	(120,349)	(9.1)
SOUTH ACTON/GARDNER :				
1st Quarter	286,444	302,354	(15,910)	(5.3)
2nd Quarter	280,742	310,449	(29,707)	(9.7)
3rd Quarter	260,931	294,445	(33,514)	(11.4)
4th Quarter	<u>279,423</u>	<u>296,181</u>	<u>(16,758)</u>	<u>(5.7)</u>
TOTAL YEAR	1,107,540	1,203,429	(95,889)	(8.0)
TOTAL NORTHSIDE ROUTES				
1st Quarter	1,372,777	1,429,967	(57,190)	(4.0)
2nd Quarter	1,343,636	1,485,232	(141,596)	(9.5)
3rd Quarter	1,298,214	1,415,127	(116,913)	(8.2)
4th Quarter	<u>1,389,533</u>	<u>1,401,709</u>	<u>(12,176)</u>	<u>(0.8)</u>
TOTAL YEAR	5,404,160	5,732,038	(327,878)	(5.7)

BOSTON & MAINE RAILROAD  
NORTHSIDE ROUTES

TOTAL PASSENGERS - IN AND OUT OF BOSTON<sup>1</sup>

	1981	1980	Increase/ (Decrease)	
			#	%
January	471,963	470,870	1,093	0.2
February	419,896	475,073	(55,177)	(11.6)
March	480,918	484,024	(3,106)	(0.6)
April	465,295	405,039	(29,744)	(6.0)
May	431,810	503,499	(71,689)	(14.2)
June	446,531	486,694	(40,163)	(8.2)
July	443,065	487,692	(44,627)	(9.1)
August	413,369	457,121	(43,752)	(9.6)
September	441,780	470,314	(28,534)	(6.1)
October	479,217	515,186	(35,969)	(6.9)
November	429,588	426,920	2,668	.6
December	380,728	459,603	(78,875)	(17.1)
TOTAL	5,304,160	5,732,035	(427,875)	(7.5)

TOTAL PASSENGER REVENUE<sup>2</sup>

	1981	1980	Increase/ (Decrease)	
			\$	%
January	\$ 624,077	\$ 534,723	89,354	16.7
February	581,335	595,884	(14,549)	(2.4)
March	644,050	554,322	89,728	16.1
April	618,555	595,033	23,522	3.9
May	565,344	575,537	(10,193)	(1.7)
June	639,294	579,856	59,438	10.2
July	632,659	599,203	33,456	5.5
August	615,607	614,887	720	0.1
September	686,453	669,298	17,155	2.5
October	676,133	671,872	4,261	0.6
November	683,893	554,923	128,970	23.2
December	684,966	614,661	70,305	11.4
TOTAL	7,652,366	7,160,199	492,167	6.8

1 - Source: Boston & Maine Accounting Department

2 - Source: MBTA Railroad Operations Directorate



COMMUTER RAILROAD - BOSTON & MAINE R.R.

1981 SUMMARY OF SERVICE PERFORMANCE

<u>NORTHSIDE ROUTES</u>	<u>% Total Trains Operated On-Time</u>		<u>% of Total Equipment Avail. for Rush Hour</u>	
	<u>1981</u>	<u>1980</u>	<u>1981</u>	<u>1980</u>
January	87.6%	90.1%	89.0%	93.8%
February	88.5	91.3	94.4	96.1
March	92.7	91.4	95.2	94.3
April	93.0	89.2	97.3	94.1
May	87.5	84.9	98.8	94.7
June	91.2	84.4	98.4	96.5
July	85.5	87.8	97.8	97.6
August	86.0	84.0	96.7	97.4
September	87.8	84.2	97.7	97.1
October	88.3	82.6	98.8	98.8
November	86.6	82.6	97.3	97.9
December	86.4	87.2	98.0	96.4
AVERAGE FOR YEAR	89.0	84.0		
<u>SOUTHSIDE ROUTES</u>	<u>1981</u>	<u>1980</u>	<u>1981</u>	<u>1980</u>
January	88.3%	79.9%	90.3%	93.5%
February	83.6	80.2	98.0	98.3
March	93.5	88.9	98.0	98.0
April	86.9	88.9	99.0	98.4
May	94.7	88.5	95.1	98.6
June	91.6	87.8	97.1	98.1
July	83.9	89.5	98.7	98.7
August	76.0	90.1	93.6	98.6
September	88.4	90.0	96.3	99.5
October	91.3	87.3	98.7	98.7
November	91.0	87.3	99.6	98.5
December	90.5	88.0	96.1	95.8
AVERAGE FOR YEAR	92.0	89.0		

(Source: MBTA Railroad Operations Directorate)



MBTA NET COST OF SERVICE

1981

ACTUAL COMPARED TO ALLOCATED BUDGET

INCOME	ACTUAL 1981	ALLOCATED BUDGET	ACTUAL 1981	
			OVER/(UNDER) \$	ALLOCATED %
Revenue from Transportation	\$ 81,811,655	\$ 90,035,261	\$ (8,223,606)	(9.13)
Revenue from Other RWY Oper.	3,101,327	3,000,000	101,327	3.37
Non-Operating Income	17,227,923	12,741,054	4,486,869	35.21
Gas & Diesel Taxes	517,631	581,583	(63,952)	(10.96)
Reimbursement from Outside Cities and Towns	1,509,560	2,400,000	(890,440)	(37.10)
TOTAL INCOME	104,168,096	108,757,898	(4,589,802)	(4.22)
<u>OPERATING WAGES &amp; FRINGE BENEFITS</u>				
Wages	137,873,214	137,272,275	600,939	0.44
G&A Costs Capitalized	(2,060,840)	(2,232,415)	171,575	(7.68)
Pensions	20,285,101	20,156,108	128,993	0.64
Social Security	10,383,167	10,246,668	136,499	1.33
Workmen's Compensation	3,281,399	3,752,872	(471,473)	(12.56)
Accident & Sickness Insurance	427,971	360,197	67,774	18.82
Group Life Insurance	909,421	968,513	(59,092)	(6.10)
Blue Cross/Blue Shield	16,403,968	16,560,430	(156,462)	(0.94)
Unemployment Insurance	786,430	722,356	64,074	8.87
Uniform & Work Clothes	532,615	515,681	16,934	3.28
Less: Fringe Benefits Cost Capitalized	(7,482,213)	(7,921,871)	439,658	5.55
TOTAL OPERATING WAGES AND FRINGE BENEFITS	181,340,233	180,400,814	939,419	0.52
Materials & Other Items	30,002,979	31,495,981	(503,002)	(1.59)
Injuries & Damages	2,940,880	2,884,881	55,999	1.94
Interest on Unfunded Debt	22,868,808	21,623,540	1,245,268	5.76
Fuel	23,239,837	24,503,979	(1,264,142)	(5.16)
Taxes	1,008,541	990,247	18,294	1.85
Railroad Commuter Subsidy	47,096,950	46,196,373	900,577	1.95
Local Service Subsidies	1,511,200	1,582,956	(71,756)	(4.53)
TOTAL OPERATING EXPENSES AND TAXES	310,999,428	309,678,771	1,320,657	0.43
TOTAL FIXED CHARGES	37,842,184	39,308,300	(1,466,116)	(3.72)
TOTAL CURRENT EXPENSES	348,841,612	348,987,071	(145,459)	(0.04)
COST OF SERVICE IN EXCESS OF INCOME	244,673,516	240,229,173	4,444,343	1.85

MBTA NET COST OF SERVICE

1981 vs. 1980

INCOME	1981	1980	ACTUAL OVER/ (UNDER)	
			\$	%
Revenue from Transportation	81,811,655	66,197,081	15,614,574	23.59
Revenue from Other RWY Oper.	3,101,327	2,650,449	450,878	17.01
Non-Operating Income	17,227,923	13,622,874	3,605,049	26.46
Gas & Diesel Taxes	517,631	478,847	38,784	8.10
Reimbursement from Outside Cities and Towns	1,509,560	3,385,982	(1,876,422)	(55.42)
<b>TOTAL INCOME</b>	<b>104,168,096</b>	<b>86,335,233</b>	<b>17,832,863</b>	<b>20.66</b>
<u>OPERATING WAGES &amp; FRINGE BENEFITS</u>				
Wages	137,873,214	142,723,205	(4,849,991)	(3.40)
G&A Costs Capitalized	(2,060,840)	(2,149,176)	88,336	(4.11)
Pensions	20,285,101	21,349,749	(1,064,648)	(4.99)
Social Security	10,383,167	9,592,495	790,672	8.24
Workmen's Compensation	3,281,399	3,441,116	(159,717)	(4.64)
Accident & Sickness Insurance	427,971	438,416	(10,445)	(2.38)
Group Life Insurance	909,421	694,013	215,408	31.04
Blue Cross/Blue Shield	16,403,968	14,403,366	2,000,602	13.89
Unemployment Insurance	786,430	178,800	607,630	339.84
Uniform & Work Clothes	532,615	587,473	(54,858)	(9.34)
Less: Fringe Benefits Cost Capitalized	<u>(7,482,213)</u>	<u>(7,588,894)</u>	<u>106,681</u>	<u>(1.41)</u>
<b>TOTAL OPERATING WAGES AND FRINGE BENEFITS</b>	<b>181,340,233</b>	<b>183,670,563</b>	<b>(2,330,330)</b>	<b>(1.27)</b>
Materials & Other Items	30,992,979	30,783,586	209,393	(0.68)
Injuries & Damages	2,940,880	2,666,762	274,118	10.28
Interest on Unfunded Debt	22,868,808	16,553,721	6,315,087	38.15
Fuel	23,239,837	22,265,512	974,325	4.38
Taxes	1,008,541	881,531	127,010	14.41
Railroad Commuter Subsidy	47,096,950	47,670,592	(573,642)	1.20
Local Service Subsidies	<u>1,511,200</u>	<u>1,517,912</u>	<u>(6,712)</u>	<u>(0.44)</u>
<b>TOTAL OPERATING EXPENSES AND TAXES</b>	<b>310,999,428</b>	<b>306,010,179</b>	<b>4,989,249</b>	<b>1.63</b>
<b>TOTAL FIXED CHARGES</b>	<b>37,842,184</b>	<b>36,983,637</b>	<b>858,547</b>	<b>2.32</b>
<b>TOTAL CURRENT EXPENSES</b>	<b>348,841,612</b>	<b>342,993,816</b>	<b>5,847,796</b>	<b>1.70</b>
<b>COST OF SERVICE IN EXCESS OF INCOME</b>	<b>244,673,516</b>	<b>256,658,583</b>	<b>(11,985,067)</b>	<b>(4.67)</b>

OVERTIME HOURS - 1981<sup>1</sup>

<u>PERIOD</u>	<u>1981</u>	<u>1980</u>	<u>INCREASE/ (DECREASE)</u>	
			<u>Hours</u>	<u>%<sup>2</sup></u>
January	32,631	32,874	(243)	(17.3)
February	17,889	42,442	(24,553)	(57.9)
March	23,272	63,206	(39,934)	(63.2)
April	7,691	40,589	(32,898)	(81.1)
May	14,317	39,305	(24,988)	(63.6)
June	22,168	58,467	(36,299)	(62.1)
July	21,122	29,754	(8,632)	(29.0)
August	20,380	25,621	(5,241)	(20.5)
September	18,413	26,915	(8,502)	(31.6)
October	16,992	19,289	(2,297)	(11.9)
November	16,142	20,287	(4,145)	(20.4)
December	<u>34,160</u>	<u>36,337</u>	<u>(2,177)</u>	<u>10.6<sup>2</sup></u>
TOTAL	245,177	435,086	(189,909)	(43.6)

<sup>1</sup>Source: Lab 142

<sup>2</sup>The percent change has been adjusted to reflect the difference in days between periods.

1981 OVERTIME - DOLLARS<sup>1</sup>

<u>PERIOD</u>	<u>1981</u>	<u>1980</u>	<u>INCREASE / (DECREASE)</u>	
			<u>\$</u>	<u>%</u> <sup>2</sup>
January	\$ 563,186	\$ 517,801	\$ 45,385	(9.4)
February	308,839	671,419	(362,580)	(54.0)
March	398,934	1,021,752	(622,818)	(61.0)
April	136,292	660,769	(524,477)	(79.4)
May	214,995	645,113	(430,118)	(66.7)
June	381,569	968,335	(586,766)	(60.6)
July	365,689	488,445	(122,756)	(25.1)
August	355,796	424,174	( 68,378)	(16.1)
September	323,908	446,431	(122,523)	(27.4)
October	297,259	325,713	( 28,454)	(8.7)
November	280,206	347,896	( 67,690}	(19.5)
December	<u>602,738</u>	<u>622,924</u>	<u>( 20,186)</u>	<u>13.8</u> <sup>2</sup>
TOTAL	4,229,411	7,140,772	(2,911,361)	(40.8)

<sup>1</sup>Source: Lab 142

<sup>2</sup>The percent change has been adjusted to reflect the difference in days between periods.



ANALYSIS OF AVERAGE INDUSTRIAL ACCIDENT, SICK & TOTAL ABSENTEE HOURS

PER INDIVIDUAL - 1981 & 1980<sup>1</sup>

<u>INDUSTRIAL ACCIDENT</u>				
	<u>1981</u>	<u>1980</u>	<u>Increase/ (Decrease) Hours</u>	<u>Increase/ (Decrease) %</u>
1st Quarter	7.41	5.76	1.65	28.6
2nd Quarter	9.18	6.19	2.99	48.3
3rd Quarter	10.59	7.50	3.09	41.2
4th Quarter	<u>9.71</u>	<u>5.95</u>	<u>3.76</u>	<u>63.2</u>
TOTAL	36.89	25.40	11.49	45.2

<u>SICK</u>				
	<u>1981</u>	<u>1980</u>	<u>Increase/ (Decrease) Hours</u>	<u>Increase/ (Decrease) %</u>
1st Quarter	21.22	19.19	2.03	10.6
2nd Quarter	19.59	15.77	3.82	24.2
3rd Quarter	19.98	17.12	2.86	16.7
4th Quarter	<u>16.73</u>	<u>17.75</u>	<u>(1.02)</u>	<u>(5.7)</u>
TOTAL	77.52	69.83	7.69	11.0

<u>TOTAL<sup>2</sup></u>				
	<u>1981</u>	<u>1980</u>	<u>Increase/ (Decrease) Hours</u>	<u>Increase/ (Decrease) %</u>
1st Quarter	34.02	29.19	4.83	16.5
2nd Quarter	33.85	26.63	7.22	27.1
3rd Quarter	36.08	29.38	6.70	22.8
4th Quarter	<u>31.66</u>	<u>28.19</u>	<u>3.47</u>	<u>12.3</u>
TOTAL	135.61	113.39	22.22	19.6

<sup>1</sup> Source: MBTA Manpower Documents and Absentee Reports

<sup>2</sup> Total absentee hours also include excused absences, suspensions, unauthorized absences, terminations, death in family, and hours missed as a result of jury duty and union business.

CHANGES IN MANPOWER LEVELS - 1981

<u>PERIOD</u>	<u># OPERATING EMPLOYEES</u>	<u>CHANGE FROM PREVIOUS PERIOD</u>	<u># CAPITAL EMPLOYEES</u>	<u>CHANGE FROM PREVIOUS PERIOD</u>
1	6,023		643	
2	5,985	(38)	658	15
3	5,899	(86)	657	(1)
4	5,675	(224)	605	(52)
5	5,612	(63)	649	44
6	5,568	(44)	656	7
7	5,524	(44)	671	15
8	5,501	(23)	663	(8)
9	5,533	32	635	(28)
10	5,454	(79)	674	39
11	5,307	(147)	654	(20)
12	5,441	134	521	(133)

Source: MBTA Manpower Reports



AVERAGE QUARTERLY MANPOWER BY FUNCTION

<u>FUNCTION</u>	<u>FIRST QUARTER</u>		<u>SECOND QUARTER</u>		<u>THIRD QUARTER</u>		<u>FOURTH QUARTER</u>	
	<u>OPERATING</u>	<u>CAPITAL</u>	<u>OPERATING</u>	<u>CAPITAL</u>	<u>OPERATING</u>	<u>CAPITAL</u>	<u>OPERATING</u>	<u>CAPITAL</u>
TRANSPORTATION SERVICES	3,106	1	2,900	1	2,868	1	2,770	1
MAINTENANCE SERVICES	2,292	236	2,177	248	2,192	273	2,120	233
ADMINISTRATION & SUPPORT SERVICES	549	46	518	46	505	44	491	42
CONSTRUCTION & COMMUTER RAIL	18	370	19	343	18	337	22	333
TOTAL	5,965	653	5,614	638	5,520	655	5,403	609

Source: MBTA Manpower Reports

AVERAGE WEEKLY RIDERSHIP\* BY PERIOD

1981 and 1980

<u>PERIOD</u>	<u>1981 AVERAGE WEEKLY RIDERSHIP</u>	<u>1980 AVERAGE WEEKLY RIDERSHIP</u>	<u>% CHANGE IN AVERAGE WEEKLY RIDERSHIP</u>
January	3,056,208	3,075,456	(0.63)
February	3,315,160	3,036,379	9.18
March	3,185,635	3,042,546	(4.70)
April	3,253,159	3,253,812	(0.02)
May	3,141,527	3,212,984	(2.22)
June	3,029,762	3,130,583	(3.22)
July	2,989,321	3,052,577	(2.07)
August	*	3,000,572	
September	*	3,291,526	
October	2,943,599	3,504,381	(16.00)
November	2,762,154	3,469,126	(20.38)
December	2,627,982	2,924,866	(10.15)

Change in average weekly ridership, January to December 1981 - (14.01%)

\* Ridership was derived from reported revenue using average systemwide fares calculated by the Central Transportation Planning Staff as follows:  
 36.5¢ January - June, 1980; 43.3¢ July & August, 1980; 43.5¢ September, 1980 through July, 1981; and 69.7¢ October - December, 1981. No calculations were made for August and September, 1981.

# 1981 TRANSPORTATION REVENUE

PERIOD	ACTUAL	BUDGETED <sup>1</sup>	OVER/(UNDER) BUDGET	
			\$	%
January	\$ 5,697,645	\$ 5,940,100	\$ (242,455)	(4.1)
February	5,768,379	5,838,400	(70,021)	(1.2)
March	6,928,756	6,715,506	213,250	3.2
April	5,660,496	5,895,800	(235,304)	(4.0)
May	5,466,257	5,837,600	(371,343)	(6.4)
June	6,589,732	7,149,500	(559,768)	(7.8)
July	5,201,419	5,203,511	(2,092)	(0.0)
August*	6,828,286	7,937,017	(1,108,731)	(14.0)
September	8,604,531	10,815,775	(2,211,244)	(20.4)
October	8,206,754	9,217,060	(1,010,306)	(11.0)
November	7,700,884	9,098,790	(1,397,906)	(15.4)
December	<u>9,158,517</u>	<u>11,651,841</u>	<u>(2,493,324)</u>	<u>(21.4)</u>
TOTAL	81,811,655	91,300,900	(9,489,245)	(10.4)

\*Fare increase 8/1/81

<sup>1</sup> These figures appeared in monthly net cost of service statements.

In July, total revenue was projected to be \$96,685,500.

By October that projection was revised to \$90,035,261

Source: MBTA RAS 860 Report



*[The page contains faint horizontal lines, suggesting it was part of a ledger or form.]*

294 Washington Street, Room 740, Boston, Massachusetts









ANALYSIS OF MBTA BUDGET AND  
SERVICE PERFORMANCE FOR 1982

MAY 31, 1983

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REPORT ON 1982 MBTA PERFORMANCE

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## 1982 MBTA PERFORMANCE

### OVERVIEW

1982 was an eventful year at the MBTA: chaos marked its beginning; a measure of stability, its final months. What began with outrageous threats of cuts in service and demands for increased funds ended with a budget surplus and service and management improvements. During the intervening months, the Authority was sharply criticized by its Advisory Board, consumer and public interest groups, state enforcement agencies, riders and the press, all of whom were unhappy with the T's lack of responsiveness in meeting the public's need for good transportation services.

The 1982 budget request was submitted before court action cleared the way for implementation of management rights legislation. No management rights planning had occurred during 1981, and the Authority did not revise its budget request to acknowledge savings made possible by the statute. Analysis by the Advisory Board Finance Committee indicated potential savings during 1982 of approximately \$11 million. The Advisory Board urged full implementation of the statute and stated its "willingness to consider a supplemental budget request later in 1982 if it becomes apparent that, despite all of its best efforts, the MBTA is unable to reach management rights savings targets" set by the Finance Committee, and "provided that the cities and towns are not vulnerable to any increase in deficit costs." The Advisory Board asked for documentation of efforts to meet targeted savings. (MBTA Advisory Board Finance Committee Report on the 1982 MBTA Budget Request.)

The ink was hardly dry on the Board's January report before it received the first of a series of \$17.5 million supplemental budget requests. As



these requests were rejected without prejudice pending documentation of the Authority's implementation of management rights targets, the MBTA escalated its campaign for a larger budget by closing rapid transit stations and holding public hearings on threatened service cuts totalling nearly \$40 million. The budget dispute was resolved on April 8 when the Advisory Board granted a \$6.4 million supplemental budget, with an additional \$7 million contingent on a guaranteed limit to the amount of property tax dollars required to pay MBTA deficits. MBTA officials promised the Board increased and improved service.

Following the wrenching hearings on threatened service slashes, the public had only a short respite from MBTA worries before the Carmen's Union staged a wildcat strike on April 16, bringing public transportation to a halt. This was the most overt of a series of actions staged by the union in its attempt to subvert increased efficiency at the Authority. A move to cripple the effect of the management rights statute through legislation was turned back at the end of the year.

The Authority was in trouble on other counts. The Advisory Board had to compel release of public information through directives of the Secretary of State under the Freedom of Information Act, and the Attorney General brought suit against the MBTA for violation of the open meeting law. A suit was filed to force compliance with an agreement between General Manager O'Leary and the Secretary of Environmental Affairs which required an adjustment in fares to win back riders lost in the wake of previous price increases and service cuts. An announced contract settlement with the Carmen's Union fell through. Advisory Board reports cited disastrous Red Line service performance; poor financial management of the commuter rail contract with the B & M Corporation; a loss of millions of dollars in potential energy conservation savings; inept scheduling of part-time bus

operators; lack of public accountability by the MBTA Pension Fund; and a series of failures, costly delays and inadequacies in the Green Line LRV procurement program. The Advisory Board continued to urge fuller use of management rights prerogatives.

The Authority sought responses to its critics. In late August, a contract was authorized for engineering design services for procurement of additional Green Line vehicles with Louis T. Klauder and Associates, a firm which had initially won endorsement for the work in late 1980. (The 20 month delay, first instigated by then-Chairman Barry Locke, has not been fully explained.) During the year, Sunday Orange Line and Blue Line service was restored, some increased bus service was provided, the Dorchester rapid transit extension and Arborway lines were opened, Beacon Street track reconstruction took place, three rapid transit stations were reopened and 168 new buses were purchased. A contract with terms more favorable to the Authority was signed with the B & M Corporation. Commuter Rail ridership showed impressive gains.

A limited increase in service levels, some reduction in the percentage of scheduled trips missed and a May 1 rapid transit fare decrease contributed to the end of the period of severe ridership loss, and a survey in November indicated that passengers were beginning to come back to the system.

As a part of the agreement with the Secretary of Environmental Affairs, the Authority was compelled to look at its management practices. The pressure of a review committee appointed by Secretary Bewick to monitor the environmental, socioeconomic and management practices studies required by the agreement was instrumental in turning an initial attempt to gloss over management problems into a report which contains a fairly objective assessment of some of the Authority's strengths and weaknesses.

The Authority made meaningful progress in implementing the management rights provisions of Chapter 581. By the fall, part-time drivers were operating out of all bus garages and by December, ten service contracts with private firms had been negotiated at an estimated annual savings of more than \$2 million.

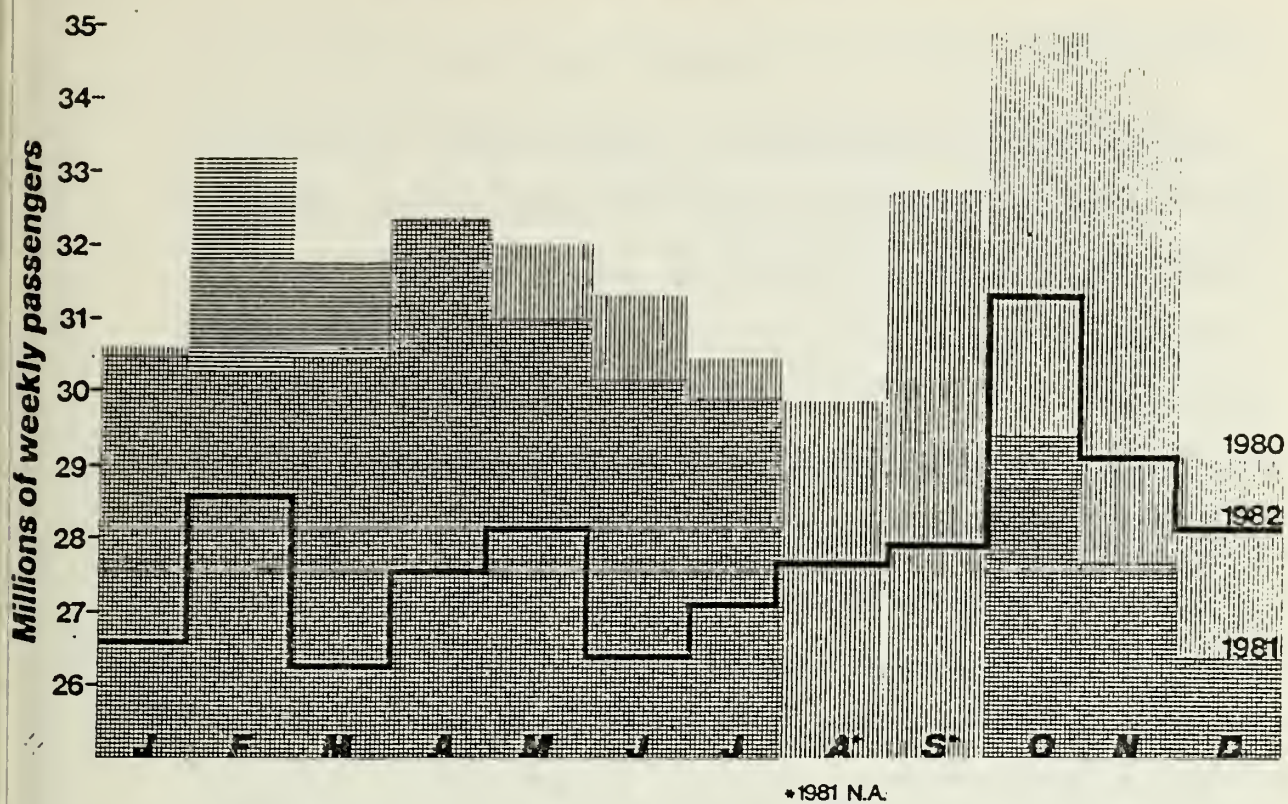
Work continued on developing a management information system which would facilitate decision-making based on timely data, and the Authority began a program to establish performance standards for operating departments. As predicted by the Advisory Board Finance Committee in the Spring, the Authority was able to complete 1982 operations without spending its full authorized budget, despite delays and problems in some management rights initiatives. Arbitration hearings on a new contract with the Carmen's Union were finished.

By the end of the year, the Authority was more stable than it had been for several years. The graphs on the following page indicate some improvement in cost per revenue mile and ridership. Nonetheless, the system remains riddled with serious operating and labor problems, major inefficiencies, inadequate measures to assess the effectiveness of service and management performance, a failed preventive maintenance program and a very thin layer of competent, experienced managers. It is now the responsibility of a new administration and a new MBTA Board of Directors to articulate policies which build on the opportunities which management rights and increased data management systems offer the T and which will address the host of budget and service problems which remain.

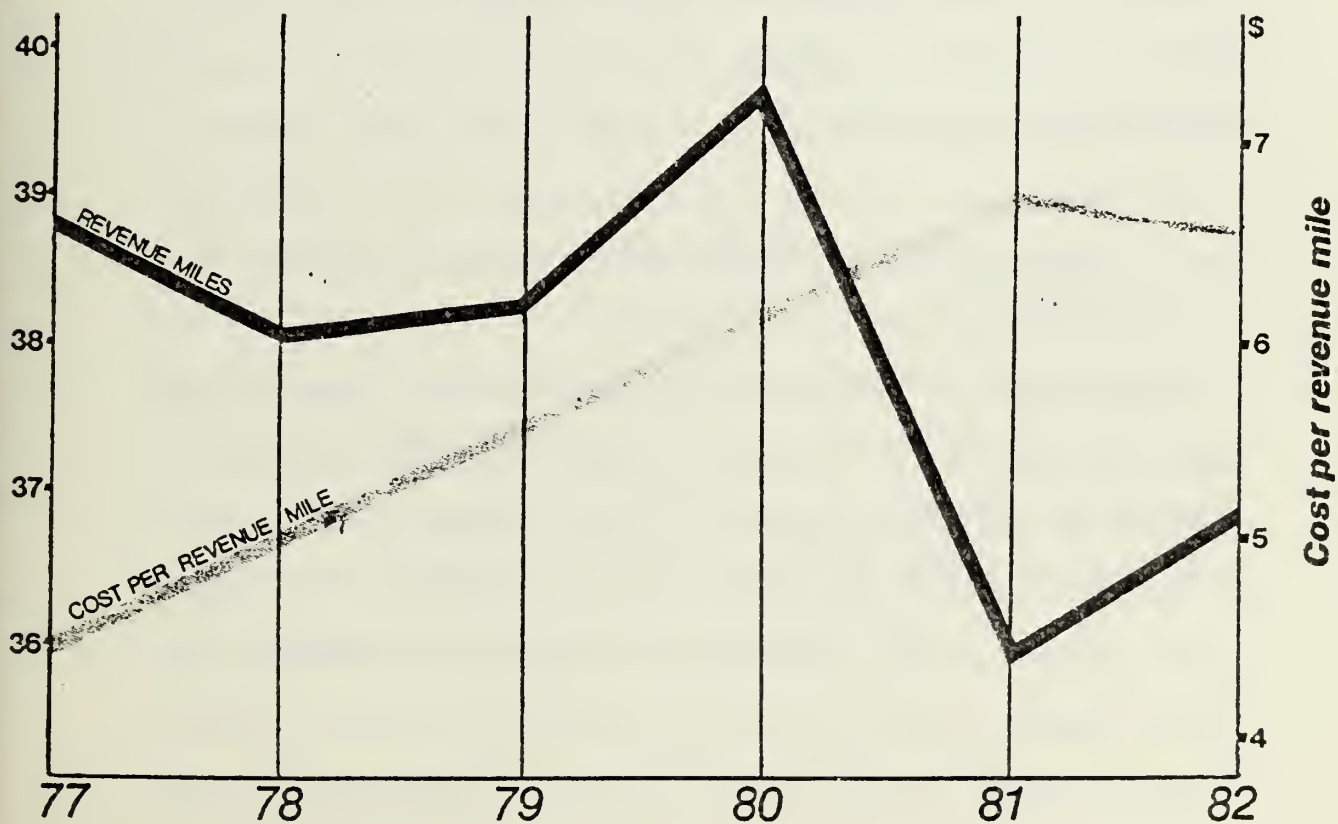
Some of those problems (particularly excessive absentee hours and a disturbing increase in overtime) are highlighted in this report. Page 11 calls to the attention of the new Board of Directors two areas which may need stronger policy direction. In addition, the next section of this report offers suggestions for improving service.



## Average Weekly Ridership



## Revenue Miles vs. Cost



## SERVICE FIRST

The real test of T performance is always service. While Proposition 2 1/2 has of necessity focused attention on cost control, there is every reason to believe that good service costs less than inadequate service in several critical areas. These areas merit attention.

A smoothly functioning preventive maintenance program requires fewer labor hours than crisis maintenance and results in better service which attracts riders and revenue. The Advisory Board is now preparing a report on preventive maintenance at the Authority. Its findings will be published later this spring.

A second area is the quality of service delivered to passengers, which depends on a host of operations details and on effective service planning, routing, scheduling, evaluation and marketing. While there are encouraging signs that ridership loss has turned around, the public transportation system should be serving many more people (and bringing in much more revenue). Too many potential riders choose not to use the T either because of its poor service reliability or because its long established route system no longer meets rider needs.

Several steps are necessary for the MBTA to serve regional transportation needs well. The Authority should undertake an origin-destination analysis to determine current regional travel patterns. Because such patterns change over time with movements of population and of centers of work, entertainment, education and shopping, most transit agencies perform this task periodically in order to understand the demand for public transportation. A comprehensive trans-

portation origin-destination analysis by the MBTA is overdue.

The results of this analysis should be used to make comprehensive adjustments to bus routes which were established years ago and since then have changed haphazardly in response to political pressure or driver preference.

Coordination among the various modes of MBTA service and between the T and transportation services provided by commuter rail, Regional Transit Authorities and private carriers could provide a more integrated transportation network. Such coordination requires analysis involving both routes (where service is provided) and schedules (when and how frequently the service arrives).

Providing reliable service which meets the transportation needs of the public at the lowest possible cost is the mission of the Authority. Such service pays for itself from farebox revenue to a greater degree than undependable, inconvenient service. Now that major system expansions are nearly complete, the MBTA cannot afford not to place its first priority on improving the quality of service delivered.

The Authority should automate scheduling and run cutting. Tighter schedules, with block numbers for buses and intermediate running times for all runs will enable measurement of on-time schedule adherence, not simply missed trips. A task force of operations analysts and management personnel should be formed to look at what immediate improvements can be undertaken and provide information for the development of a strategy for future changes.



While not all service can be evaluated on the basis of revenue and ridership, those are important measures of overall MBTA performance. The Treasurer/Controller's office now gives inadequate support to MBTA service delivery. Functions which must be strengthened include data synthesis (especially since federal operating subsidies will increasingly be allocated on the basis of performance data) pass program administration and comprehensive revenue management.

An accurate, accessible public information system is necessary to make a well-planned transit system effective for the riding public. Good information, courteously given invites increased ridership. In this area the T has considerable room for improvement. Easy to read timetables that are both correct and informative in terms of routes, fares, and connections are essential. A well-publicized, adequately staffed telephone service that provides exact information when it is needed (not just during business hours) is also critical. Potential commuters need readily available information on the pass program and other multiple ride options that offer a discount or convenience for regular riders. All users deserve timely notice of proposed changes of service which might affect them. And finally, drivers, starters and collectors who are sensitively trained to deal courteously with the public are an essential link in referring people to the proper source of correct information on their transit needs.

# 1982 MBTA BUDGET SUMMARY

## SOURCES

(in millions of dollars)

		<u>% of Total</u>
Fares	\$93.3	26.1%
Other Income	12.9	3.6
Federal Subsidy	23.2	6.5
Contract Assistance	46.7	13.1
Commonwealth	92.0	25.7
Cities and Towns	89.4*	25.0
	<hr/>	<hr/>
TOTAL	357.5	100.0

## USES

			<u>% Change Since 1980</u>
Wages	135.2	37.8	(3.8)
Fringe Benefits	47.7	13.3	10.7
Materials, Service, Utilities	32.6	9.1	6.0
Fuel	21.2	5.9	(5.0)
Commuter Rail	45.3	12.7	0.9
Subsidy for Private Service	1.5	0.4	(0.3)
Taxes & Fees	1.0	0.3	12.4
Injuries & Damages	2.9	0.8	8.2
Debt Service--Bonds	49.8	13.9	34.6
Debt Service--Notes	20.3	5.7	23.0
	<hr/>	<hr/>	<hr/>
TOTAL	357.5	99.9	4.2

\*Cities and towns also pay interest costs for Commonwealth borrowing for MBTA operations. 1982 cost is estimated to be \$8 million.

## BUDGET PERFORMANCE

The MBTA's original 1982 budget request to the Advisory Board was for \$380,447,866, a 9.1% increase over 1981 spending. The Advisory Board in its final action limited the Authority to a 2.5% increase or \$357,507,092.

In fact, T spending was \$5.4 million below budget, and the Authority and its Advisory Board agreed to utilize the savings to fund retroactive pay increases awarded in new contract arbitration to members of the Carmen's Union, Local 589.

A decline in fuel prices, a drop in interest rates and a reduction in personnel from a 1981 average of 6202 to a 1982 average of 5976 were major factors in meeting overall budget limits.

The absence of clear budget targets for departments early in the year and late year adjustments so that monthly "budgeted" figures came close to "actual" expenditures indicates that there is plenty of room for better planning and monitoring of budgets on both the individual department level and for the Authority as a whole.

The chart below (and the graph on page 5 ) demonstrates improved efficiency in 1982, largely due to management rights initiatives. A cost increase of less than one half of one percent bought a 3.5% increase in revenue miles and a reduction in cost per revenue mile. Future year management rights efficiencies will produce less dramatic results, but should help contain costs of public transportation services.

<u>Year</u>	<u>Operating Cost (Net of Debt Service &amp; CR)</u>	<u>Annual Revenue Miles</u>	<u>Cost Per Revenue Mile</u>	<u>Increased/ (Decreased) Cost/Rev.Mi.</u>
1982	\$242,087,598	36,977,013	\$6.55	(3.0%)
1981	241,033,670	35,717,187	6.75	10.7
1980	241,785,866	39,613,068	6.10	8.7
1979	214,980,897	38,295,961	5.61	9.1
1978	195,188,618	37,991,810	5.14	7.1
1977	186,734,254	38,888,458	4.80	

Establishment of goals for 1983 performance which include reductions in absenteeism and overtime, increased productivity and better preventive maintenance is a vital part of the budget process. Implementation, monitoring and evaluation of these goals are crucial for further savings.

It is also time for the Authority to reevaluate specific areas of potential savings. Two of the most important are risk management and energy conservation. Risk management is a very "contemporary" issue, with a great deal of industry and public sector attention focused on limiting insurance and liability costs. The escalation in Authority expenditures (particularly in workmen's compensation, injuries and damages and health insurance line items) suggests that members of the new Board of Directors should review work done by their predecessors and develop policy directives to minimize Authority costs in such areas.

In contrast, it is no longer "chic" to be concerned with energy conservation. Nevertheless, the 1982 Advisory Board report on energy conservation at the T and a multitude of studies and reports done over the past few years indicate that now is the time to give high priority to devising a multi-year strategy to implement the changes, large and small, which will result in more efficient use of energy at the Authority and better control over a significant percentage of operating cost.

# 1982 EXPENDITURES BY DEPARTMENT

	Actual 1982	Actual 1981	1982 Over/(Under) 1981 \$	%
Executive				
Wages	1,194,764	1,079,192	115,572	10.7
Materials	261,474	266,445	(4,971)	(1.9)
Service/Other	343,964	228,477	115,487	50.5
TOTAL	1,800,202	1,574,114	226,088	14.4
Operations				
Wages	2,214,320	2,181,136	33,184	1.5
Materials	9,375	7,458	1,917	25.7
Service/Other	1,594,697	1,524,969	69,728	4.6
TOTAL	3,818,392	3,713,563	104,829	2.8
Transportation				
Wages	70,084,788	69,735,015	349,773	0.5
Materials	67,125	77,247	(10,122)	(13.0)
Service/Other	522,789	314,568	208,221	66.2
TOTAL	70,674,702	70,126,830	547,872	0.8
Eng. & Maintenance				
Wages	24,195,340	24,748,451	(553,111)	(2.0)
Materials	3,956,394	3,397,351	559,043	16.5
Service/Other	26,143,169	27,710,007	(1,566,838)	(5.7)
TOTAL	54,294,903	55,855,809	(1,560,906)	(2.8)
Rail Equipment				
Wages	12,599,015	12,525,122	73,893	0.6
Materials	4,580,766	4,690,533	(109,767)	(2.3)
Service/Other	785,987	850,216	(64,229)	(7.6)
TOTAL	17,965,768	18,065,871	(100,103)	(0.6)
Auto Equipment				
Wages	10,464,551	11,012,435	(547,884)	(0.5)
Materials	2,910,895	2,490,758	420,137	16.9
Service/Other	8,065,298	8,019,565	45,733	0.6
TOTAL	21,440,744	21,522,758	(82,014)	(0.4)
Green Line Equip.				
Wages	6,477,720	6,551,698	(73,978)	(1.1)
Materials	1,629,845	1,885,282	(255,437)	(13.5)
Service/Other	818,583	807,382	11,201	1.4
TOTAL	8,926,148	9,244,362	(318,214)	(3.4)
Treasurer/Contr.				
Wages	3,468,095	3,283,025	185,070	5.6
Materials	125,111	137,236	(12,125)	(8.8)
Service/Other	3,007,362	2,370,233	637,129	26.9
TOTAL	6,600,568	5,790,494	810,074	14.0



	Actual 1982	Actual 1981	1982 Over/(Under) 1981	
			\$	%
MIS				
Wages	546,925	475,682	71,243	15.0
Materials	65,304	37,124	28,180	76.0
Service/Other	405,889	205,641	200,248	97.4
TOTAL	1,018,118	718,447	299,671	41.7
Law				
Wages	1,151,484	1,306,031	(154,547)	(11.8)
Materials	2,783	1,619	1,164	72.0
Service/Other	3,119,381	3,121,144	(1,763)	0.0
TOTAL	4,273,648	4,428,794	(155,146)	(3.5)
Real Estate				
Wages	70,167	57,433	12,734	22.2
Materials	1,107	4,813	(3,706)	(77.0)
Service/Other	184,691	264,119	(79,428)	(30.1)
TOTAL	255,965	326,365	(70,400)	(21.6)
Police				
Wages	1,849,726	1,686,609	163,117	9.7
Materials	10,380	8,451	1,929	22.8
Service/Other	139,771	61,854	77,917	126.0
TOTAL	1,999,877	1,756,914	242,963	13.8
Personnel				
Wages	827,659	760,033	67,626	8.9
Materials	79,214	10,034	69,180	689.5
Service/Other	4,296,166	3,542,342	753,824	21.0
TOTAL	5,203,039	4,312,409	890,630	21.7
Materials				
Wages	1,551,536	1,360,580	190,956	14.0
Materials	37,577	27,026	10,551	39.0
Service/Other	14,503	9,997	4,506	45.1
TOTAL	1,603,616	1,397,603	206,013	14.7
Commuter Rail	45,254,048	47,096,950	(1,842,902)	(3.9)

SOURCE: MBTA Responsibility Reports



MASSACHUSETTS BAY TRANSPORTATION AUTHORITY--1982 NET COST OF SERVICE

	1982 MBTA Request	1982 Approved Budget	1982 Actual Expenditures	1981 Actual Expenditures	Increase/ (Decrease) from 1981
Income:					
Revenue from Transportation	115,900,000	97,000,000	93,272,962	81,811,655	14.0
Revenue from Other Rwy. Operations	3,300,000	3,000,000	3,365,599	3,101,327	8.5
Non-Operating Income	14,613,707	12,000,000	8,102,602	17,227,923	(53.0)
Gas & Diesel Taxes Reimbursable	615,000	535,332	489,400	517,631	(5.5)
Reimbursement from Outside District	1,800,000	1,500,000	922,589	1,509,560	(38.9)
TOTAL INCOME	<u>136,228,707</u>	<u>114,035,332</u>	<u>106,153,152</u>	<u>104,168,096</u>	<u>1.9</u>
Operating Wages & F.B.:					
Wages	143,776,940	133,259,915	136,898,306	137,873,214	(0.7)
Gen. & Adm. Cost Capit.-Credit	(2,134,086)	(2,007,783)	(1,721,868)	(2,060,810)	(16.4)
MBTA Pensions	21,514,856	19,894,747	19,793,376	20,285,101	(2.4)
Social Security Taxes	11,103,050	10,266,970	10,466,784	10,383,167	0.8
Workmen's Compensation	3,808,513	3,752,876	3,997,759	3,281,399	21.8
Accident & Sickness Insurance	392,245	362,708	391,213	427,971	(8.6)
Group Life Insurance	957,855	885,726	916,364	909,421	0.8
Blue Cross-Blue Shield	18,216,374	16,844,647	18,430,479	16,403,968	12.4
Unemployment Insurance	500,000	1,100,000	195,000	786,430	(75.2)
Uniform & Work Clothes	596,624	532,524	561,471	532,615	5.4
Fringe Benefit Cost Capit.	(10,932,073)	(9,507,529)	(7,072,080)	(7,482,213)	(5.5)
TOTAL OPERATING WAGES & F.B.	<u>187,800,298</u>	<u>175,384,801</u>	<u>182,856,804</u>	<u>181,340,233</u>	<u>0.8</u>
Materials & Other Items	32,459,593	33,877,887	32,638,002	30,992,979	5.3
Injuries & Other Damages	2,884,881	2,884,881	2,884,881	2,940,880	(1.9)
Interest on Unfunded Debt	24,442,290	23,114,752	21,384,355	22,868,808	(6.5)
Fuel	24,820,224	21,584,775	21,204,360	23,239,837	(8.8)
Taxes	1,105,000	990,852	990,464	1,008,541	(1.8)
RR Computer Subsidy	46,196,373	46,196,373	45,254,048	47,096,950	(3.9)
Local Service Subsidies	1,613,184	1,613,184	1,513,087	1,511,200	0.1
RR Computer Unreimb.					
TOTAL OPERATING EXPENSES & TAXES	<u>323,321,843</u>	<u>305,647,505</u>	<u>308,726,001</u>	<u>310,999,428</u>	<u>(0.7)</u>
Fixed Charges:					
Int. on Fund. Debt (MBTA)	5,792,125	4,144,824	3,448,135	3,637,624	(5.2)
Int. on Funded Debt (MTA)	35,580,872	31,961,737	29,635,751	20,891,292	41.9
Payment on Funded Debt (MBTA)	2,631,926	2,631,926	2,631,926	2,537,259	3.7
Payment on Funded Debt (MTA)	12,935,000	12,935,000	12,900,835	10,685,000	20.7
Miscellaneous Charges	101,500	101,500	90,756	45,989	--
Bond Discount Amortization	84,600	84,600	73,688	21,150	329.1
Bank Service Charges				23,870	208.7
TOTAL FIXED CHARGES	<u>57,126,023</u>	<u>51,859,587</u>	<u>48,781,091</u>	<u>37,842,184</u>	<u>28.9</u>
TOTAL CURRENT EXPENSES	<u>380,447,866</u>	<u>357,507,092</u>	<u>357,507,092</u>	<u>348,841,612</u>	<u>2.5</u>
COST OF SERVICE IN EXCESS OF INCOME	<u>244,219,159</u>	<u>243,471,760</u>	<u>251,353,940</u>	<u>244,673,516</u>	<u>2.7</u>

## MANAGEMENT RIGHTS

Chapter 581, Sec. 8 spells out areas deemed to be inherent prerogatives of management and precludes any collective bargaining with regard to such management rights. The statute was enacted late in 1980 and has withstood numerous tests of its legality. A critical court decision in late fall of 1981 paved the way for the initial implementation of some of the changes the statute makes possible, and during 1982 important ground breaking occurred in building a more efficient transit authority.

In any building project there are some phases of construction which are visibly dramatic and others during which an observer is unaware of progress until a number of incremental changes come together. 1982 was a year for management rights drama. For the first time, the Authority contracted with private sector firms to provide routine services, and it hired part-time operating personnel, primarily as bus drivers and collectors/gatemen.

Many of the less visible management rights have just begun or have not yet been initiated. Nonetheless, 1982 savings from using outside firms and part-time employees are significant at approximately \$7 million.

1982 witnessed the first substantial efforts by the MBTA to cut the cost of service by utilizing management's right to contract out services which could be more cost effectively delivered by private companies. During the year 10 such contracts were entered into by the Authority. They covered cleaning of buses, daily station cleaning, watchman services and janitorial services for MBTA build-

ings. The combined estimated savings for one year is \$2,076,586.

No MBTA employees were laid off as a result of these contracts. A combination of transfers, retraining and attrition preserved jobs for T employees while reducing taxpayer cost.

For the public to benefit fully from these contracts it is necessary that the T set specific standards for contract performance and have in place a meaningful monitoring system. It is too early to determine whether contract administration is being done effectively.

In January 1982 the first part-time drivers hired by the T under Chapter 581 went on active duty. By August part-timers were working out of all bus garages and by the end of the year had contributed 131,010 hours of labor.

It is difficult to put a precise figure on the savings realized from the use of part-timers in 1982. A look at one garage's experience gives some indication of the dimension of the impact.

Quincy Garage, the first garage to incorporate part-time drivers, introduced them in the winter schedules in January, 1982. Quincy's timetable immediately preceding that (Fall 1981) shows an average of \$2340/week spent for hours of scheduled free time and \$4616/week of premium pay for drivers with guaranteed overtime or split shifts. This equals a total of \$6956 paid weekly by the T to Quincy drivers because of the lack of good "fit" between available manpower and scheduled runs. A year later (Fall 1982) the same garage with the flexibility of 54 full-time drivers and 30 part-time had reduced scheduled cover to \$150/ week and premium pay to \$1152/week for a savings of \$5654/week or about \$294,000 a year.

The flexibility brought to the timetable by the inclusion of part-time runs has also increased the efficiency of scheduled full-time

SERVICE CONTRACTS AWARDED--1982

	<u>Cost</u>	<u>Est. Savings</u>
Triangle Services of Mass., Inc. Daily cleaning of specified stations	\$674,474	\$387,317
Crystal Industrial Maintenance Co. Interior cleaning of buses	316,196	400,000
LDE, Inc. d/b/a Cleanway Transit Services Cleaning of buses	796,893	267,951
Excelon Security Services, Inc. Watchman services	163,502	234,443
Empire Cleaning, Inc. Cleaning Blue Line rapid transit stations	790,236	146,000
Consolidated Service Corp. of Boston Cleaning downtown rapid transit stations	309,996	155,087
Capitol Building Services, Inc. Cleaning rapid transit stations: Community College to Oak Grove	90,000	163,549
Empire Cleaning, Inc. Cleaning Haymarket, North Science Park and Lechmere stations	117,000	36,191
Macke Building Services of Boston Cleaning Boylston, Arlington, Copley, Auditorium, Kenmore, Prudential and Symphony stations	167,328	179,420
Macke Building Services of Boston Cleaning Red Line stations Charles to Harvard/Brattle	<u>103,272</u>	<u>106,628</u>
TOTALS	3,528,897	2,076,586



1982 PART-TIME HOURS--BUS GARAGES

PERIOD	GARAGE					
	QUINCY	CABOT	SALEM	ARBORWAY	LYNN	BENNETT
1	890					
2	1043					
3	1745					
4	1034					
5	1628	2321				
6	3576	3072	408			
7	2503	3143	2761	24		
8	3174	3568	3489	28	6	12
9	4093	5814	4276	2765	1184	2023
10	3393	5587	4300	3368	1769	3303
11	3151	5952	4376	3222	2005	3274
12	4368	10,229	6229	4495	2792	4612
TOTAL	30,598	39,686	25,839	13,902	7,756	13,224

SOURCE: Expenditure Ledgers

1982 AVERAGE QUARTERLY MANPOWER BY FUNCTION

FUNCTION	1ST QUARTER		2ND QUARTER		3RD QUARTER		4TH QUARTER	
	Oper.	Cap.	Oper.	Cap.	Oper.	Cap.	Oper.	Cap.
TRANSPORTATION SERVICES	2762	1	2800	1	2918	1	2926	0
MAINTENANCE SERVICE	2146	139	2156	88	2108	77	2085	86
ADMINISTRATIVE & SUPPORT SERVICES	486	40	480	121	512	30	495	31
CONSTRUCTION & COMMUTER RAIL	<u>25</u>	<u>338</u>	<u>16</u>	<u>345</u>	<u>19</u>	<u>371</u>	<u>21</u>	<u>356</u>
TOTALS	5419	518	5452	555	5557	479	5527	473

SOURCE: MBTA Manpower Reports

1982 MANPOWER

Period	# of Oper. Empl.*	Change From Prev. Period	# of Capital Empl.	Change From Prev. Period	# of P-T Empl.	Change From Prev. Period
1	5451		517	--	--	--
2	5456	5	517	--	--	--
3	5388	(68)	504	(13)	--	--
4	5453	65	479	(25)	--	--
5	5395	(58)	532	53	--	--
6	5526	131	500	(32)	80	--
7	5565	39	473	(27)	179	99
8	5574	9	462	(11)	228	49
9	5528	(46)	480	18	214	(14)
10	5466	(62)	513	33	251	37
11	5544	78	477	(36)	228	(23)
12	5558	14	472	(5)	285	57

\*Includes part-time employees at full-time equivalent.

SOURCE: MBTA Manpower Reports



runs. The scheduled miles per platform hour at Quincy have steadily increased from the Fall of 1981 (12.43) to the Fall of 1982 (13.26). The public is getting more service and paying less for it.

A recent Advisory Board study of bus operator schedules now in effect (Spring, 1983) and those used before the introduction of part-time drivers, found current savings to be greater than \$4 million for bus driver wages alone and predicted that 1983 savings may reach \$8 million. The analysis indicates that increased use of part-time employees would result in greater cost savings (cf. May, 1983 issue of The Advisor).

1982 PER PERSON OVERTIME HOURS BY DEPARTMENT

	<u>TOTAL HOURS</u>	<u>AVERAGE MANPOWER</u>	<u>AVERAGE OT/EMPLOYEE</u>
EXECUTIVE	643.41	59	10.91
OPERATIONS	8,618.07	73	118.06
TRANSPORTATION	152,688.08	2,853	53.52
ENG. & MAINT.	40,194.60	913	44.02
MAINTENANCE SHOPS	0	320	--
RAIL EQUIP.			
AUTOMOTIVE EQUIP.	98,433.60	987	99.73
GREEN LINE EQUIP.			
CONSTRUCTION	10,317.68	361	28.58
TREAS./CONTROLLER	18,092.81	160	113.08
LAW	0	48	--
POLICE	21,304.00	67	317.97
PERSONNEL	283.25	32	8.85
MATERIALS	527.50	76	6.94
RAIL OPERATIONS	156.75	16	9.80
REAL ESTATE	126.00	11	11.45

SOURCE: MBTA Reports

## OVERTIME

Management rights provisions allow the Authority to develop a rational overtime policy, one based on competence and analysis of the most cost effective way to manage human resources rather than on union seniority and a desire by employees to add as much as possible to weekly paychecks.

In 1981, before management rights provisions were upheld by the courts, the T spent \$4.2 million on overtime, down substantially from the \$7.1 million paid in 1980. \$4.3 million was requested for 1982. The Advisory Board cut this to \$4,078,917 in light of new control measures announced by the Authority after the court decision and subsequent to the 1982 budget submission.

When the year was ended the actual overtime hours used by the Authority exceeded the original request by 20% and overtime expenditures were 23.5% more than approved by the Advisory Board.

Comparison of 1981 and 1982 overtime hours by department pinpoints major increases in overtime in Transportation, Engineering and Maintenance and Surface Carhouses.

The performance of the Transportation Department is particularly disappointing considering the contracting out of station cleaning and the introduction of part-time workers during 1982. The use of part-timers on the bus lines should have allowed the T to substantially reduce overtime.

Part of the explanation is that the introduction of part-timers into the system did not proceed smoothly. Many full-time operators bitterly opposed their inclusion in schedules and the consequent

loss of high paying driver runs with extra pay for no extra work. Many part-timers, initially scheduled poorly, trained inadequately, paid between \$22 and \$44 per day with no benefits, and harrassed by full-time co-workers, left the T. Overtime was used to meet the resulting manpower deficiency.

The high rate of absenteeism also affected overtime. The number of absence hours per employee in the Transportation Department increased from 167 to 197. Hours lost per employee due to claimed industrial accidents went up 53% with more than 50,000 additional hours lost in the department in 1982 than were reported for 1981. If service schedules are to be met, these lost hours must be made up on overtime.

An analysis of overtime per employee in each department directs attention to the Police Department with almost 40 full days of overtime per officer in 1982. This is the equivalent of eleven additional officers (or 16% of the department) working full-time for an entire year. Of the 105 T employees who earned more than \$8,000 in overtime during 1982, 26 were police officers. 39% of the police force are in the top 25% of employees with the highest overtime earnings. The high proportion of police with substantial overtime raises serious questions about the use of overtime in the police department, questions also raised by the State Auditor in his most recent report on the Authority. The Auditor pointed to a pattern, not uncommon among other employees at the T, of police officers paid in the same week for both absences and for overtime work. This practice obviously allows an employee to receive more than a full week's pay for less than a full week's work. The Police Department lost 71 hours in sick leave and 34 hours in claimed

industrial accident, per employee, in 1982.

By contract, police personnel work a short week with 1/3 of the force off duty on any given day. Vacations further reduce available manpower. For 1983, the police budget was increased 23% to include funds for additional officers. It is imperative that the new head of the MBTA Police Department manage department personnel in a way which will maximize public safety. This will require immediate attention to the problem of excessive overtime.



# OVERTIME HOURS AND DOLLARS--1981 AND 1982

## HOURS (OPERATIONS)

Department	1982	1981	% Change
Executive Office	627.91	77.25	713
Director of Operations	7,985.82	5,408.96	48
Transportation	136,315.50	110,282.87	24
Engineering & Maintenance	21,938.67	18,111.59	21
Maintenance Shops	0	6,472.15	--
Rail Equip. Maintenance	24,126.03	26,106.57	(8)
Surface Carhouses	47,701.58	6,200.02	669
Auto Equip. Maintenance	17,391.00	15,914.57	9
Construction Directorate	70.17	12.17	477
Treas./Cont. & MIS	18,092.81	39,474.33	(54)
Law	0	4	--
Real Estate Management	0	0	--
Police	21,090.00	22,487.92	(6)
Personnel Directorate	283.25	4.92	5657
Materials	460.00	206.50	123
Safety & Training	0	0	--
Commuter Rail Directorate	22.75	20.80	9
TOTAL	296,105.49	250,780.66	18.1%

## DOLLARS (OPERATIONS)

Executive Office	9,946.86	1,279.19	678
Director of Operations	146,926.67	89,495.85	64
Transportation	2,636,321.60	2,049,126.40	29
Engineering & Maintenance	414,988.83	333,301.48	25
Maintenance Shops	0	121,791.44	--
Rail Equip. Maintenance	445,040.11	518,922.82	(14)
Surface Carhouses	412,139.91	107,904.70	282
Auto Equip. Maintenance	336,845.41	325,221.15	4
Construction Directorate	2,301.89	584.06	294
Treas./Cont. & MIS	285,435.74	303,011.73	(6)
Law	73.34	65.53	12
Real Estate Management	0	191.22	--
Police	340,283.15	374,458.65	(9)
Personnel Directorate	0	86.41	--
Materials	7,642.15	3,595.12	113
Safety & Training	0	0	--
Commuter Rail Directorate	412.39	365.52	13
TOTAL	5,038,358.05	4,229,401.27	19%

HOURS (CAPITAL)

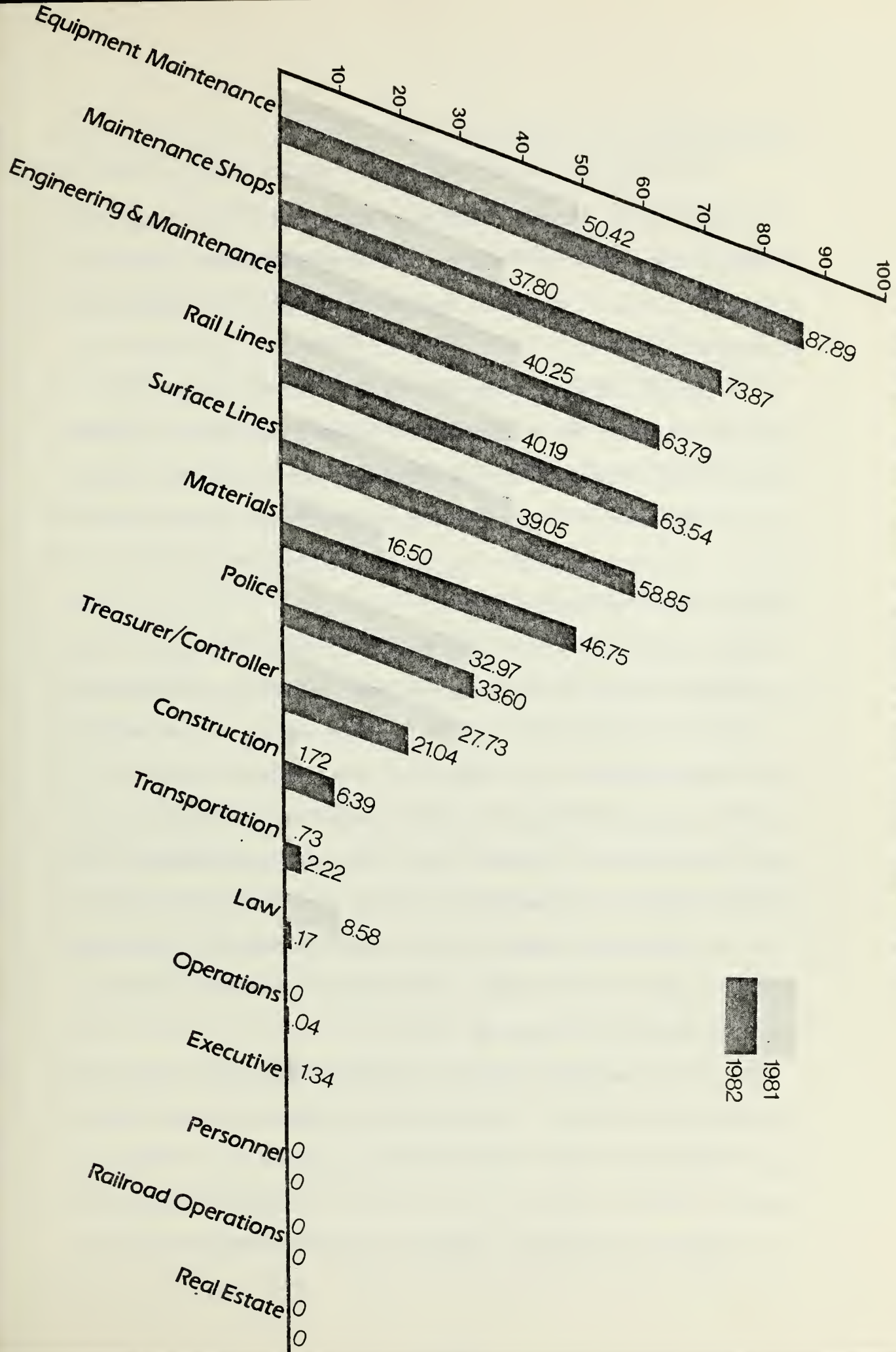
Department	1982	1981	% Change
Executive	15.50	0	--
Director of Operations	632.25	483.25	31
Transportation	16,372.58	6,449.57	154
Engineering & Maintenance	18,255.95	14,554.17	25
Maintenance Shops	0	12.00	--
Rail Equip. Maintenance	6,608.12	5,282.17	25
Surface Carhouses	2,549.87	294.42	766
Auto Equip. Maintenance	57.00	62.25	(8)
Construction Directorate	10,247.51	10,011.10	2
Treas./Contr. & MIS	0	20.00	--
Law	0	0	--
Real Estate Management	126.00	214.00	(41)
Police	214.00	1,076.25	(80)
Personnel Directorate	0	0	--
Materials	67.5	16.0	322
Safety & Training	0	0	--
Commuter Rail Directorate	134.00	0	--
TOTAL	55,280.28	38,475.39	44%

DOLLARS (CAPITAL)

Executive Office	230.30	0	--
Director of Operations	11,646.16	8,015.35	45
Transportation	263,998.41	113,015.90	134
Engineering & Maintenance	337,687.23	270,982.79	25
Maintenance Shops	0	263.19	--
Rail Equip. Maintenance	131,761.38	100,768.86	31
Surface Carhouses	51,618.19	5,880.26	778
Auto Equip. Maintenance	1,105.04	1,188.00	(7)
Construction Directorate	201,165.85	191,594.72	5
Treas./Contr. & MIS	380.81	332.96	14
Law	0	0	--
Real Estate Management	2,640.04	5,110.42	(48)
Police	583.25	17,347.63	(97)
Personnel Directorate	0	322.15	--
Materials	1,188.36	372.92	219
Safety & Training	0	0	--
Commuter Rail Directorate	2,736.38	0	--
TOTAL	1,006,741.40	715,195.15	41%

SOURCE: MBTA Overtime Allocation Reports

# Industrial Accident Hours Lost per Employee





## ABSENTEEISM

The reporting of employee absenteeism lists hours lost in each department for a variety of reasons including sick leave, industrial accidents, A.W.O.L., jury duty, suspension, unauthorized absence and excused absence.

Of the 971,153 employee hours lost in 1982 through absences, 41% were categorized as due to illness and 37% were the result of industrial accident claims. These two categories alone accounted for the loss of almost 400 man years (40 hour week, 48 weeks per year) of work by T employees--or about 16 days of absence for each of the average 5976 T employees in 1982.

Absence due to illness in 1982, though high at an average 9.2 days per employee, showed a slight decline from 1981 levels. Nonetheless it remained 5.6% above 1980 levels. A survey of the various departments shows that Rail Lines, with a per person absence rate from illness running 52% greater than the average for the Authority as a whole, is of particular concern. Rail lines with 955 employees (16% of total employees) accounted for 24.4% of such absences in 1982--a rate per employee 38% above the next highest department. Unexpected absences in Rail Lines directly affect service and result in missed trips or additional overtime or both.

Hours lost by employees because of industrial accidents are completely out of control. Such absence has increased 136% in the two years from 1980 to 1982. An analysis by department shows that the highest losses per employee and the largest percentage increases in hours lost are in Automotive Equipment Maintenance (87.99 hours/em-

ployee--75% increase over 1981) and Maintenance Shops (73.87 hours/employee--95% increase over 1981), followed closely by Engineering and Maintenance (63.79 hours/employee--59% increase), Rail Lines (63.54 hours/employee--58% increase) and Surface Lines (58.85 hours/employee--51% increase).

These departments are central to the Authority's ability to deliver service. In the Advisory Board's analysis of 1981 budget and service it flagged the 45% increase in absentee hours per person as a result of industrial accident claims and stated that "management's attention to this problem is long past due." Yet the problem has become even more severe.

The MBTA claims that hours lost in the maintenance departments are made up through increased productivity and, where appropriate, the hiring of temporary help. This claim is very difficult to believe. An estimated 4.8%, 6.4% and 5.9% increase in productivity would be necessary in the Engineering and Maintenance, Maintenance Shops and Automotive Equipment Maintenance Departments respectively to offset per person absences greater than 5 days per year. Evidence suggests that more likely results of increased absenteeism are higher overtime costs and inadequate maintenance, not increased productivity.

If the 1982 increase in industrial accident absentee hours in the Transportation Department were made up through overtime, the additional cost in 1982 alone would have been well over \$1 million. It is evident that both service performance (cf. p. 45) and the overtime budget (cf. p. 22) have suffered because of the increase in employee absenteeism.

The loss of 190 man years and the waste of millions of taxpayer dollars cannot be ignored. Part of the problem may be the result of



a flawed workmen's compensation system substantially outside the control of T management, part may be inadequate management control, part may be a product of labor/management relations which have deteriorated over the past few years. Whatever the cause(s), the results are staggering, and the problem must be addressed now.

The Authority should explore with employees possible changes in its personnel management policies in order to better control absenteeism. It should consider contracting out the management of the workmen's compensation system. Working with other employers and with legislators, a means to correct defects in the workman's compensation system should be found. A reevaluation of insurance options should be undertaken. The Authority's progress in addressing the issue of excessive absenteeism in general and of non-controlled industrial accident claims in particular will be monitored by the Advisory Board during 1983.

AVERAGE INDUSTRIAL ACCIDENT, SICK AND TOTAL ABSENCE HOURS  
PER EMPLOYEE

INDUSTRIAL ACCIDENTS

				Increase/(Decrease) Since 1980	
	1982	1981	1980	HOURS	%
1st Quarter	14.58	7.41	5.76	8.82	153
2nd Quarter	16.16	9.18	6.19	9.97	161
3rd Quarter	15.10	10.59	7.50	7.60	101
4th Quarter	14.03	9.71	5.95	8.08	136
Year	59.87	36.89	25.40	34.47	136

SICK

1st Quarter	21.17	21.22	19.19	1.98	10
2nd Quarter	19.18	19.59	15.77	3.41	22
3rd Quarter	17.71	19.98	17.12	.59	3
4th Quarter	15.65	16.73	17.75	(2.10)	(12)
Year	73.71	77.52	69.83	3.88	6

TOTAL ABSENCE

1st Quarter	41.73	34.02	29.19	12.54	43
2nd Quarter	44.92	33.85	26.63	18.29	69
3rd Quarter	40.10	36.08	29.38	10.72	36
4th Quarter	35.87	31.66	28.19	7.68	27
Year	162.62	135.61	113.39	49.23	43

Source: Analysis of Sick and Absentee Hours

SICK HOURS PER AVERAGE EMPLOYEE  
BY DEPARTMENT

DEPARTMENT	1982	1981	Increase/(Decrease) Since 1981	
			Hours	%
Executive	26.34	20.33	6.01	30
Operations	15.59	15.17	.42	3
Transportation	69.63	46.13	23.50	51
Rail Lines	112.22	124.18	(11.96)	(10)
Surface Lines	79.12	82.89	(3.77)	(5)
Eng. & Maintenance	64.55	62.00	2.55	4
Maintenance Shops	81.37	102.57	(21.20)	(21)
Equipment Mntnce.	60.02	63.13	(3.11)	(5)
Construction	40.64	41.12	(.48)	(1)
Treasurer/Cont & MIS	58.91	65.43	(6.52)	(10)
Law	52.27	37.68	14.59	39
Real Estate	4.91	8.17	(3.26)	(40)
Police	71.45	76.77	(5.32)	(7)
Personnel	40.06	23.74	16.32	69
Materials	41.20	55.04	(13.84)	(25)
Rail Operations	11.44	18.06	(6.62)	(37)

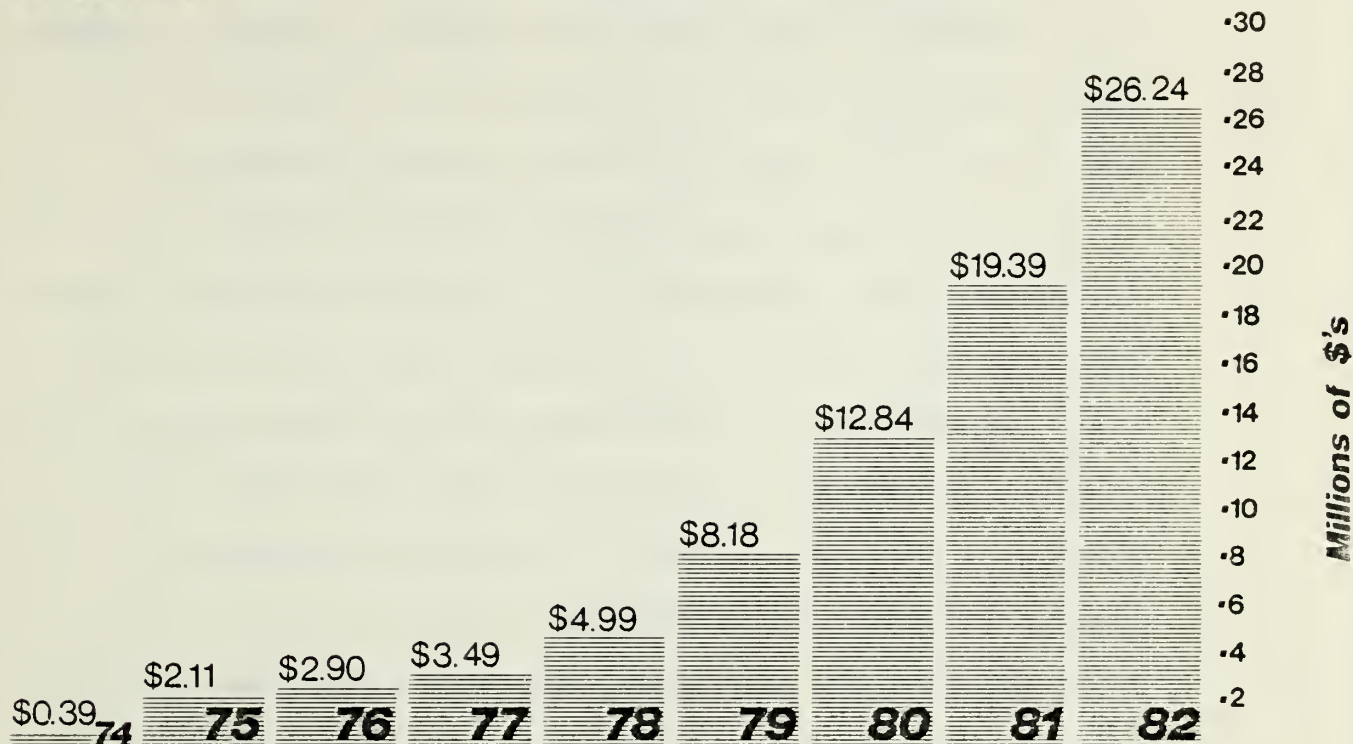
EMPLOYEE INDUSTRIAL ACCIDENT HOURS

Executive	.00	1.34	(1.34)	0
Operations	.04	.00	.04	0
Transportation	2.22	.73	1.49	204
Rail Lines	63.54	40.19	23.35	58
Surface Lines	58.85	39.05	19.80	51
Eng. & Maintenance	63.79	40.25	23.54	58
Maintnce. Shops	73.87	37.80	36.07	95
Equipment Mntnce.	87.99	50.42	37.57	75
Construction	6.39	1.72	4.67	272
Treas./Cont. & MIS	21.04	27.73	(6.69)	(24)
Law	.17	8.58	(8.41)	(98)
Real Estate	.00	.00	.00	0
Police	33.61	32.97	.64	2
Personnel	.00	.00	.00	0
Materials	46.75	16.50	30.25	183
Railroad Operations	.00	.00	.00	0

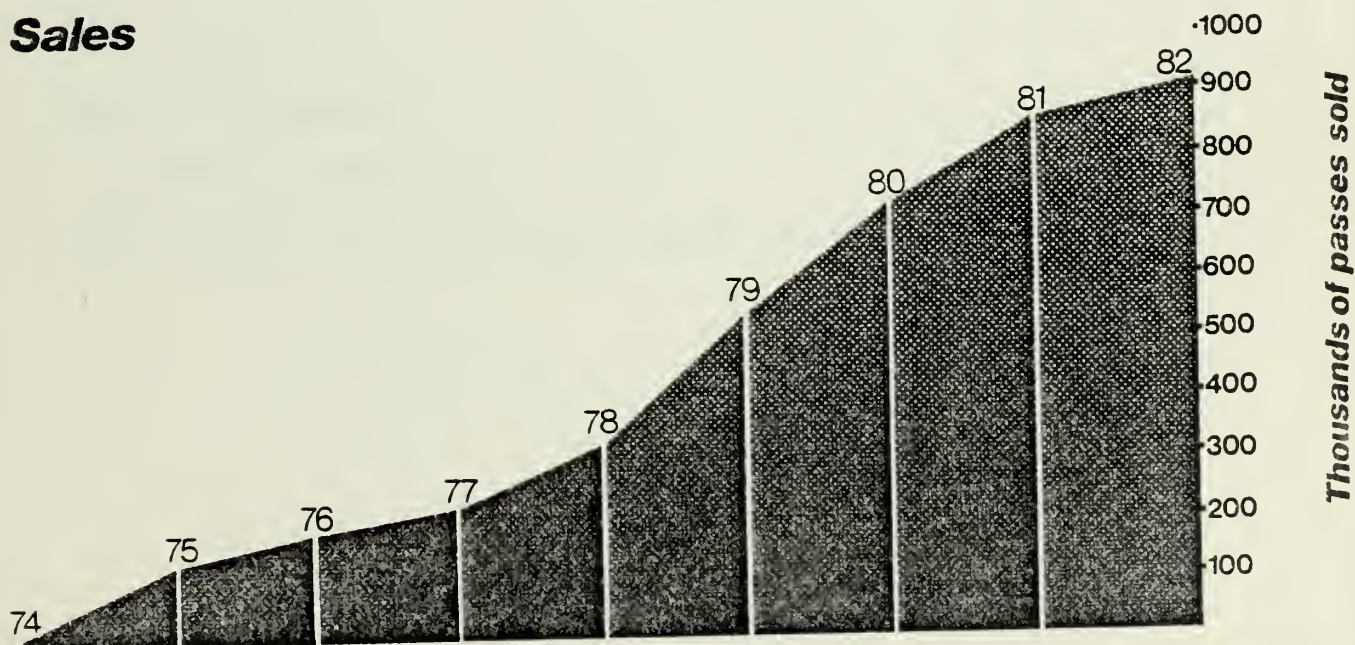
Source: MBTA Sick & Absence Hours Reports

# MBTA Pass Program

## Revenue



## Sales





## RIDERSHIP AND REVENUE

Revenue from transportation was up 14% in 1982, the first full year following the summer, 1981 fare increase; but ridership, though slowly increasing, has not yet returned to the level of early 1981. And ridership still remains far below the levels of the 1960s.

The Service Planning department which oversees ridership counts at the MBTA has made adjustments in its calculations to produce statistics consistent with those of the Central Transportation Planning Staff. Nonetheless, continued reliance on once a year sampling of ridership to determine counts leaves much to be desired. Irregularities in the yearly collection of sample data and the use of possibly outdated seasonal adjustment factors in monthly calculations produce little confidence in the value of published ridership estimates. The need for more direct and more frequent collection of accurate ridership information on all lines remains.



# 1982 REVENUE AND RIDERSHIP

PERIOD	REVENUE	AVG. FARE <sup>1</sup>	AVG.WEEKLY RIDERSHIP <sup>2</sup>	% CHANGE FROM 1981
1	7,728,335	69.9	2,668,755	(13)
2	8,008,090	69.9	2,864,125	(14)
3	9,186,678	69.9	2,628,521	(17)
4	7,744,799	69.9	2,769,957	(15)
5	6,912,031	61.5	2,809,769	(11)
6	8,114,089	61.5	2,638,729	(13)
7	6,673,383	61.5	2,712,757	(9)
8	6,875,520	61.5	2,794,927	N/A
9	8,617,914	61.5	2,802,574	N/A
10	7,616,708	61.1	3,116,493	6
11	7,176,593	61.1	2,936,412	6
12	<u>8,604,936</u>	61.1	2,816,673	7
TOTAL	93,259,076			

SOURCE: MBTA Reports

1 From CTPS and MBTA estimates

2 Derived from revenue figures and average fare estimates

## MANAGEMENT PRACTICES

The final version of the MBTA's Management Practices Study, mandated by the Secretary of Environmental Affairs as part of the analysis of the impact of fare increases, was released in October, 1982. The purpose of the report was to evaluate key operating areas of the Authority and to identify improvements that would have a positive impact on T performance. The study contained both a description by Authority management of practices within departments and a report by the consulting firm Touche, Ross & Company comparing the MBTA in specific areas with four other U.S. transit agencies and with the Toronto Transit Commission, an acknowledged leader in transit performance.

As the study was being compiled, the T developed performance standards and goals in the Transportation, Automotive Equipment Maintenance, Rail Equipment Maintenance and Engineering and Maintenance Departments. Garage by garage targets were set which included goals on manpower levels, budget adherence and reduction of absenteeism, as well as work standards. The importance of this first step in holding departments and workers accountable for specific performance cannot be understated. It is a critical step in bringing current management practices to the Authority. What is imperative at this point is that this initiative not be lost. Now T management must strengthen the process to measure actual performance against objective standards.

The analysis by Touche, Ross makes it clear that more improvements are necessary for the T's performance to come close to that of efficient systems. The collection of accurate and timely data, the establishment of comprehensive information systems to analyze and disseminate the data and the establishment of performance evaluation systems are key. Specific recommendations from Touche, Ross include: establishment of good preventive maintenance; an updated scheduling process and a more disciplined planning process; study of supervisor to staff ratios in the Transportation Department; establishment of more efficient staffing mix in the maintenance area; and a more objective evaluation process for managers.

## HEALY AWARD

On January 15, 1983 arbitor James Healy announced settlement of the contract dispute between the MBTA and Local 589 of the Carmen's Union. The agreement is effective through March 1985 and covers both wage issues and conditions of employment.

On the wage issue the major elements of the award include a retroactive pay increase of 5% effective January 1982 and subsequent increases of 4% (April, 1983; Jan., 1984; July, 1984) and 2% (Jan., 1985) totalling a compound increase of 20% above 1981 wage levels. It also increased part-time base wages to the same level as comparable full-time wages. The T had been paying part-timers 70% of full-time wages.

The major non-wage elements of the award were the arbitor's decision to eliminate "past practices" from contract protection and to limit the T's use of part-time employees to 15% of the number of full-time employees in each job classification and exclude them from Saturday and Sunday service as well as "fill in" service for absent full-time employees.

The wage and benefit settlement added over \$5 million dollars to the 1982 budget and will precipitate a larger '82 cost when the other unions representing T workers settle. What is most disturbing about the award are the limitations put on the T's use of part-time employees. The restrictions as to number and use of part-timers appear to violate state statute (Ch. 581, Sec. 8) and the question of whether or not the arbitor exceeded his jurisdiction in this matter is now before the courts.

## THE RIDE

The Ride, the MBTA's specialized transit service for the handicapped, has provided over a quarter of a million trips to disabled persons since its beginning in 1977. THEM, Inc. [Transportation for the Handicapped and Elderly in Massachusetts], under contract to the Authority, operates the service. The T's Office of Special Needs sets guidelines and monitors the contract.

The service area for this door-to-door demand responsive system is currently limited to Brookline, Cambridge and about 60% of Boston. In March of 1982, a fixed-route, fixed-schedule loop service, the Downtown Distributor, was added to The Ride (North Station to South Station area). The intent of the Distributor was to minimize the time individual inbound vans spent snarled in city traffic. Now, "Downtown bound" passengers must transfer to the loop service to reach their final destinations.

The value of the distributor has been questioned by users. Time consuming and physically difficult transfers as well as less direct access to a destination have replaced what was a door-to-door service. Since the introduction of the Distributor, total ridership for The Ride has declined more than is readily apparent from the statistics. Transfers are now counted as two trips where previously the same journey was reported as one trip.

THEM's contract, virtually automatically renewed each year, should be more closely monitored by the T and a thorough analysis of the service should be completed.



In the last year, though operating costs decreased, net cost per hour and per mile actually increased as there were cutbacks in total service hours and a decline in revenue.

- Major extensions of The Ride are scheduled to take place this year. Before this occurs, an evaluation of the efficiency and effectiveness of the current service should be undertaken.

The very nature of the service also calls for the establishment of a feedback mechanism from the targeted population to the Office for Special Needs. The service is not effective if it is unusable by a sizable percentage of its intended patrons.

Rider input could also prove helpful in producing a clearer, more readable Riders' manual and in tackling the problem of a high percentage of rider-cancelled trips.

Effort also needs to be directed to ongoing marketing. Currently no advertising takes place after the initial introduction of The Ride to an area. Cambridge, for example, has been served by The Ride for five years, but currently has a very low percentage of eligible patrons registered.

# "THE RIDE" 1982 OPERATIONS SUMMARY

	SERVICE HOURS	PSNGR. TRIPS	TOTAL MILES	TRIPS /HOUR	TRIPS LATE*	TRIPS MISSED	TRIPS N/A	TRIPS CANC.**
1st Quarter	13,793	21,062	112,139	1.53	1,243	114	1,300	4,931
2nd Quarter	12,606	20,036	105,857	1.59	595	23	1,355	4,181
3rd Quarter	12,947	19,622	105,118	1.52	663	15	434	3,617
4th Quarter	12,392	21,203	102,169	1.71	636	18	781	5,096
TOTAL 1982	51,738	81,923	425,283	1.58	3,137	170	3,870	17,825
TOTAL 1981	55,013	82,794	487,135	1.50	3,913	N/A	N/A	N/A
CHANGE (%)	5.95	-1.05	-12.70	5.33	-19.83	N/A	N/A	N/A

\*Within a 20-minute window

\*\*Counted as cancelled only after trip has been scheduled

# "THE RIDE" 1981-1982 REVENUE & COST SUMMARY

	OPERATING COSTS	TOTAL REVENUE	NET COST /TRIP*	REV. /TRIP	NET COST /HOUR	REV./ HOUR	NET COST /MILE	REV./ MILE
1982	955,360	63,642	10.88	.78	17.24	1.23	2.10	.15
1981	1,007,802	67,523	11.36	.82	17.09	1.23	1.93	.14
CHANGE (%)	(5.2)	(5.75)	(4.88)	.88	.00	8.80	7.14	

[\*\*As of March 1982, transfers are recorded as 2 trips though 1 fare; same journey previously recorded as 1 trip.]

# NUMBER OF HANDICAPPED PERSONS WITH ACCESS TO THE MBTA

	ELIGIBLE	REGISTERED W/THE RIDE	PERCENT
ALLSTON/BRIGHTON	3,411	1,088	31.90
CHARLESTOWN	464	60	12.93
BACK BAY	2,254	522	23.16
SOUTH BOSTON	2,287	175	7.65
SOUTH END/DOWNTOWN & NORTH END/BEACON HILL	2,624	587	22.37
ROXBURY	3,998	127	3.18
EAST BOSTON	1,501	261	17.39
DORCHESTER/MATTAPAN*	3,683	68	1.85
CAMBRIDGE	4,778	682	14.27
BROOKLINE	3,644	1,484	40.18
TOTAL	28,644	4,966	17.34

\*Added to service area on 2/2/83; 60% of Boston Served by The Ride as of 2/2/83.





## COMMUTER RAIL

In January, 1982 a new five year contract between the MBTA and the B & M for operation of Commuter Rail services was finalized. The new contract included specific service evaluation provisions and performance standards, marking another first step for T management in gaining control over the quality and cost of its service.

The MBTA's 250-mile commuter rail system provided exemplary service to passengers in central and eastern Massachusetts. Without major schedule revisions, the commuter rail system carried a record 10,043,486 passengers, up almost 10% over 1981. Revenue was up almost 20% to more than \$15 million. Commuter rail became more attractive during 1982 as 32 new coaches, rebuilt from Budd RDCs by Morisson-Knudson Corporation, entered revenue service. Winter service was aided by the fact that all of the unreliable steam-heated coaches were retired from passenger service during the year. On-time performance increased from 88.2% in 1981 to 91.8% in 1982. Rush hour equipment availability increased from an average 97% in 1981 to virtually 100%.

Commuter rail's good performance allowed a reduction of more than \$1.75 million in the subsidy paid by tax dollars, demonstrating that service reliability pays off.

Several key positions at the T responsible for oversight of the B & M contract still remain vacant. Questions raised a full year ago by the Advisory Board's Commuter Rail committee on contract monitoring have not been fully addressed.







## MBTA SERVICE PERFORMANCE

1982 Service performance on the MBTA's three rapid transit lines, five streetcar lines, and 150 bus and trackless trolley lines failed to show marked improvement over 1981's poor service performance record. The number of missed trips increased by 12% to nearly 90,000, or 3.6% of those scheduled. The 2,361,051 trips actually operated by the MBTA represents the fewest number of trips operated since the Advisory Board began keeping records in 1976. Table I. shows the trend in service delivery. The April work stoppage and a very severe winter storm on April 6, 1982 both had significant effects on second quarter service performance, as illustrated in the exhibits that follow. In most instances, service performance showed signs of improvement from the first to the last months of the year.

Information in the tables below and elsewhere in this section is derived from daily service reports prepared by the Authority and does not include performance of Saturday or Sunday service. The Advisory Board evaluates regular, scheduled service and thus trips added for such things as ball games or events at the Boston Garden are not included in our statistics. The inclusion of weekend and added trips would increase the number of trips run in all years. The apparent inconsistency between the reported increase in 1982 revenue miles and the decrease in scheduled trips actually run may be explained by a greater than usual number of added trips and/or the increase in weekend service levels. There may also be inconsistencies in data reported by the Authority.

TABLE I.

## WEEKDAY TRIPS ACTUALLY OPERATED BY THE MBTA

YEAR	TRIPS SCHEDULED	SCHEDULED TRIPS MISSED	SCHEDULED TRIPS ACTUALLY RUN
1982	2,449,419	87,568	2,361,051
1981	2,541,387	77,981	2,463,406
1980	2,696,810	59,607	2,637,203
1979	2,637,625	98,757	2,538,868
1978	2,625,202	69,369	2,555,833
1977	2,778,504	77,420	2,701,084
1976	2,588,177	66,989	2,521,188

Missed trips due to employee-related problems increased to 43,329, 38% higher than 1981's level of 31,426. The figure for 1982 represents a 751% increase in employee-related missed trips since record-keeping began in 1976. (cf. Table II.) Employee-related missed trips involve all incidents that may prevent an employee from being present to operate a trip, not only employee absence.

TABLE II.

## MISSED TRIPS DUE TO EMPLOYEE-RELATED PROBLEMS

YEAR	TRIPS MISSED	EMPLOYEE-RELATED MISSED TRIPS	%
1982	87,568	43,329	49.48
1981	77,981	31,426	40.30
1980	59,607	18,776	31.50
1979	98,757	9,777	9.90
1978	69,369	10,336	14.90
1977	77,420	7,123	9.20
1976	66,989	5,091	7.59

During 1982 the MBTA made strides in improving bus and rail operations. Bus availability was nearly 100% for the year, a rare achievement in previous years. This improvement was due in part to the receipt of 168 new 40-foot buses from Flyer Industries of Canada and a winter characterized by warmer weather. Almost all of the Red Line's Silverbird fleet had traction motors reinsulated against moisture, resulting in less snow particle ingestion and increased availability of that type of car. Twenty-eight of the Red Line's Bluebird cars have been rehabilitated by MBTA forces at the Cabot Shop and are now in service along both branches of the Red Line. A number of major improvements are in the works for the MBTA's troubled Boeing LRV fleet. Included in the rehabilitation effort will be new, more reliable door leaves; improved drawbars and couplers; new wheels; roof insulation, and a new program to maintain the cars cosmetically. The new cars in both the Blue and Orange Lines have performed extremely well since their introduction into service.

All three rapid transit stations which had been closed during the 1981 and 1982 budget disputes were reopened during the year. Sunday rapid transit service which had been cut back to Wellington on the Orange Line and Orient Heights on the Blue Line was fully restored.

The MBTA has recently undertaken some steps to insure future operational improvement in terms of efficiency, carrying capacity and reliability. Bids are being sought for up to 30 articulated buses that allow for increased ridership without the need for additional operators. Performance specifications are being

finalized for an order of up to 60 additional LRVs for service on the Green Line. The MBTA recently applied for Federal funding for 58 additional Red Line cars to provide added passenger capacity on the line that suffers most severely from a vehicle shortfall. During 1983, new Red Line stations at Quincy Adams (South Quincy) and Harvard Square (replacing both Harvard/Holyoke and Harvard/Brattle) will enter revenue service. The new Suffolk Downs station on the Blue Line will be completed during the Fall of 1983.

The following pages will describe MBTA service performance by line, accompanied by detailed tables illustrating the change in performance levels during 1982. The MBTA/Advisory Board 2% missed trips standard is used in this section to compare service performance in 1982 to both 1981 and 1980.

#### RAPID TRANSIT LINES

Service performance levels on the MBTA's three rapid transit lines, Red, Orange, and Blue, dropped further below the already poor level of 1981. Over 25,000 rapid transit trips (5.1% of those scheduled) were missed during 1982. Nearly 20,000 of those were on the Red Line. While the April strike caused a higher number of crew-related missed trips, equipment failures were a significant factor in the high number of Red Line missed trips.

Red Line vehicle problems affected nearly one of every four scheduled trips during the year, although that figure did improve toward the end of the year, presumably due to milder weather. Closer analysis of the Red Line's problems showed that the traction motors of one type of car (1500 and 1600 series) were inges-



ting snow particles which caused the motors to short-circuit. While investigation of this problem allowed MBTA craftsmen to fabricate special insulating parts, brutally cold and snowy weather early in the year crippled the fleet, most of which had not been modified, prompting a phenomenal number of cancelled trips.

Even after the traction motor modifications had been installed in the affected portion of the fleet, vehicle shortfalls continued to plague the Red Line. It was a rare occasion in 1982 when the Red Line had a sufficient number of vehicles to meet the peak hour requirements. In addition, operational problems, including the perennial problems of unannounced skipping of stops, cab-signal failures, and slow orders along the unimproved portion between Harvard and Andrew Stations continued unabated during the year, showing no signs of either management- or labor-induced improvement.

1982 service performance on both the Blue and Orange Lines was below the Advisory Board standard for satisfactory levels of performance. However, the Blue Line did post more encouraging results for 1982 than 1981. Missed Orange Line trips are up over 50% with the highest percentage due to employee-related problems (66.5%).

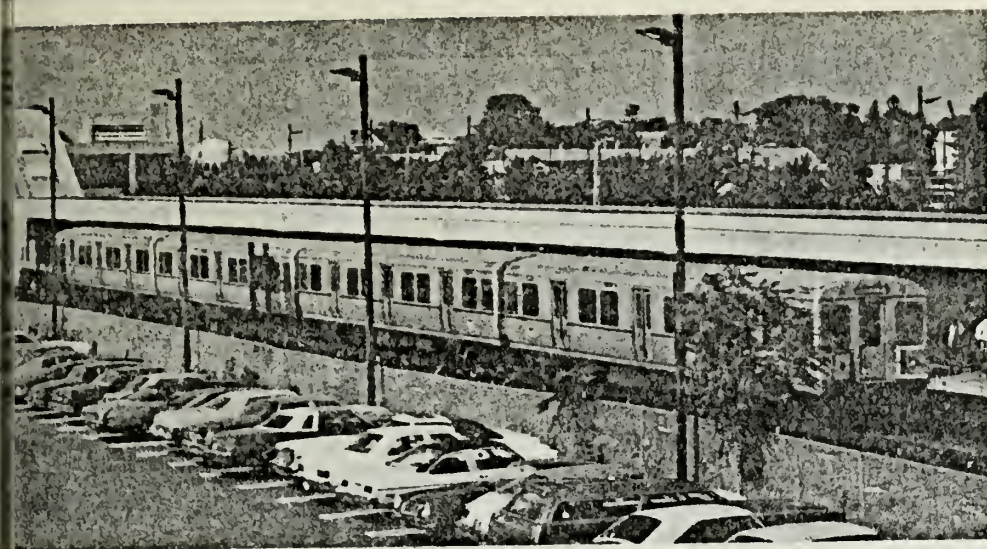
Capital improvements are in full swing on each of the three rapid transit lines with projects most likely to improve service performance taking place on the Blue Line. Track, overhead catenary (power wire), and defective ties are being replaced on the Blue Line between Airport and Wonderland Stations (the entire surface portion of the Blue Line). The Dorchester Extension of



the Red Line reopened after complete rebuilding during January 1982. With the exception of the usual and continuing Red Line operating problems, the new construction and smoother ride was welcomed by Red Line passengers. The Red Line Northwest Extension is moving ahead on-schedule with the new Harvard Station due to open during Summer 1983. The remaining three stations, at Porter Square in Cambridge, Davis Square in Somerville, and at Alewife on the Cambridge/Arlington line are rapidly nearing completion and will enter revenue service on September 9, 1984. The elevated portion of the Orange Line received complete track surfacing during 1982 which resulted in a smoother, safer ride for Orange Line passengers through Jamaica Plain, Roxbury, and the South End.

Forseeing a shortfall in rapid transit cars on the Red Line, the MBTA has applied for Federal funding for 58 new Red Line vehicles. These cars will allow the operation of six-car trains, significantly increasing the rush-hour capacity of that line. There are some serious concerns about the timing of the new car procurement as well as the precise number of new cars that will be required. Even if the cars are delivered on time as specified in the proposed contract documents, the current peak-hour shortfall has yet to be addressed and may intensify when the new Quincy Adams Station opens (scheduled for Fall, 1983) and construction narrows the expressway.

Construction along the Southwest Corridor (Orange Line) is also moving along on-schedule with the revenue operation date set for Fall, 1986. All of the major line segment contracts have been



## RED LINE

### RED LINE SERVICE PERFORMANCE

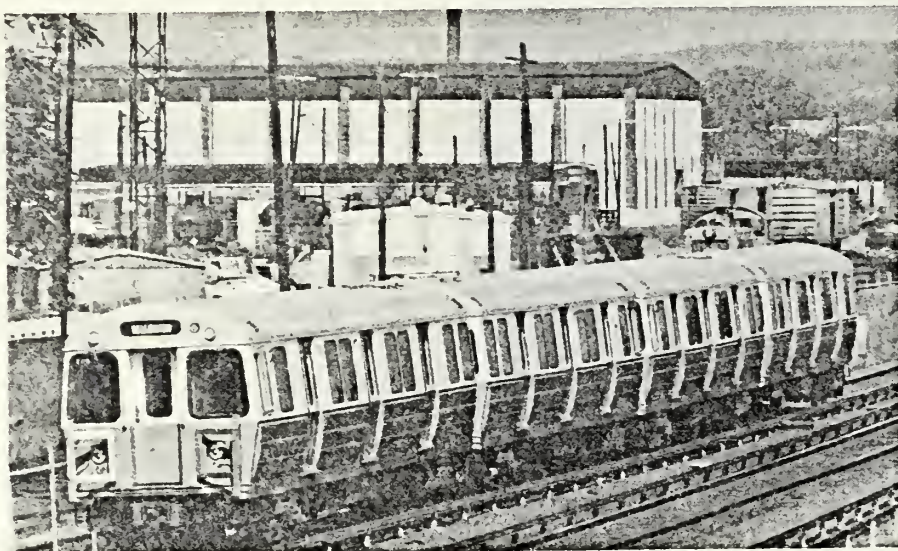
QTR	SCHEDULED CAR TRIPS	CAR TRIPS #	NOT RUN %	CAUSES OF MISSED TRIPS AS A % OF TRIPS MISSED					VEHICLE BREAKDOWNS PER 100 SCHD TRIPS	RUSH HOUR EQUIPMENT SHORTFALL %
				VEHICLE NOT AVAIL	CREW NOT AVAILABLE	DISABLED VEHICLE	HEADWAY	MISC		
1	53128.00	5955.00	11.21	42.96	14.16	13.99	27.52	1.38	5.58	13.21
2	52050.00	6881.00	13.22	24.00	43.90	8.70	19.60	3.66	5.80	15.77
3	54054.00	3550.00	6.57	12.77	37.92	14.91	31.34	3.23	6.91	9.47
4	51480.00	2487.00	4.83	10.86	21.79	20.59	40.33	6.44	6.27	7.86
TOTAL 1982	210712.00	18873.00	8.96	26.14	30.48	13.10	27.04	3.23	6.13	11.50
TOTAL 1981	184278.00	12896.00	7.00	29.60	23.30	24.40	21.20	1.60		
TOTAL 1980	193564.00	9798.00	5.10	22.10	26.50	20.70	28.60	2.20		

### RED LINE SCHEDULED MILEAGE

QTR	WEEKDAY	SATURDAY	SUNDAY	TOTAL
1	1328570	229927	80113	1638610
2	1351155	249223	110860	1711238
3	1488123	249228	129360	1866711
4	1337154	231426	137984	1706564
TOTAL 1982	5505002	959804	458317	6923123
TOTAL 1981	4581294	594068	304810	5480172
CHANGE (%) *	20.16	61.56	50.36	26.33

\* THE SIGNIFICANT INCREASE IN MILEAGE IS DUE, IN PART, TO THE REOPENING OF THE DORCHESTER BRANCH BETWEEN COLUMBIA AND MATTAPAN ON JANUARY 16, 1982.





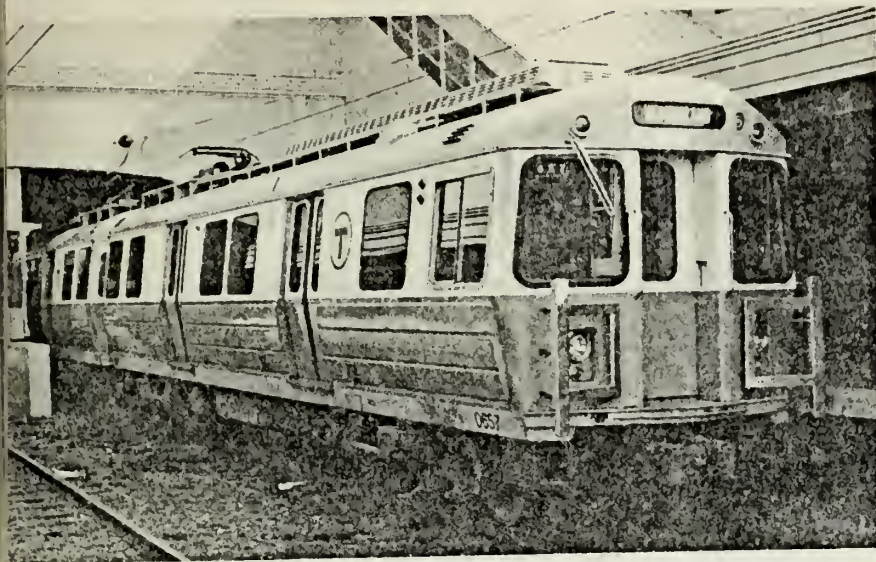
## ORANGE LINE

### ORANGE LINE SERVICE PERFORMANCE

QTR	SCHEDULED CAR TRIPS	CAR TRIPS #	NOT RUN %	CAUSES OF MISSED TRIPS AS A % OF TRIPS MISSED					VEHICLE BREAKDOWNS PER 100 SCHD TRIPS	RUSH HOUR EQUIPMENT SHORTFALL %
				VEHICLE NOT AVAIL	CREW NOT AVAILABLE	DISABLED VEHICLE	HEADWAY	MISC		
1	33536.00	689.00	2.05	36.28	38.32	4.35	14.66	6.39	2.16	.56
2	34922.00	1798.00	5.15	4.10	74.10	.50	6.50	4.79	1.62	.05
3	36090.00	607.00	1.68	1.32	88.96	.66	5.27	3.79	1.56	.05
4	34920.00	392.00	1.12	1.28	46.68	2.55	8.67	40.82	1.65	.00
TOTAL 1982	139468.00	3486.00	2.50	9.66	66.53	1.52	8.14	14.14	1.74	.16
TOTAL 1981	123687.00	2287.00	1.80	7.70	67.70	3.00	8.70	12.90		
TOTAL 1980	124134.00	1067.00	.90	8.20	67.70	.70	7.50	15.90		

### ORANGE LINE SCHEDULED MILEAGE

QTR	WEEKDAY	SATURDAY	SUNDAY	TOTAL
1	705662	115120	37173	857955
2	743143	125132	50781	919056
3	832890	127652	57915	1018457
4	759748	118534	61776	940058
TOTAL 1982	3041443	486438	207645	3735526
TOTAL 1981	2651705	379117	164394	3195216
CHANGE (%)	14.70	28.31	26.31	16.91



## BLUE LINE

### BLUE LINE SERVICE PERFORMANCE

QTR	SCHEDULED CAR TRIPS	CAR TRIPS #	NOT RUN %	CAUSES OF MISSED TRIPS AS A % OF TRIPS MISSED					VEHICLE BREAKDOWNS PER 100 SCHD TRIPS	RUSH HOUR EQUIPMENT SHORTFALL %
				VEHICLE NOT AVAIL	CREW NOT AVAILABLE	DISABLED VEHICLE	HEADWAY	MISC		
1	37376.00	521.00	1.39	6.91	60.46	5.18	22.84	4.61	1.42	.65
2	36452.00	1878.00	5.15	.20	63.40	2.60	15.60	18.10	1.30	.39
3	36236.00	376.00	1.04	.00	62.77	1.60	6.38	29.26	1.33	.08
4	35520.00	236.00	.66	3.39	66.95	3.39	16.10	10.17	1.30	.30
TOTAL 1982	145584.00	3011.00	2.07	1.59	63.09	2.98	15.74	16.61	1.34	.36
TOTAL 1981	133416.00	3321.00	2.50	.90	69.10	3.90	15.50	10.60		
TOTAL 1980	134516.00	2678.00	2.00	1.30	69.20	7.50	7.20	14.70		

### BLUE LINE SCHEDULED MILEAGE

QTR	WEEKDAY	SATURDAY	SUNDAY	TOTAL
1	456762	78914	31332	567008
2	453235	86912	34062	574209
3	486405	86912	37665	610982
4	448074	80704	40176	568954
TOTAL 1982	1844476	333442	143235	2321153
TOTAL 1981	1654493	191268	110496	1956257
CHANGE (%)	11.48	74.33	29.63	18.65



awarded and a number of segments have been completed. Remaining contracts include work on station buildings, tracks and signals, and landscaping.

#### STREETCAR LINES SERVICE PERFORMANCE

During 1982, MBTA streetcar line service performance improved in terms of missed trips. However, there are many areas in which MBTA streetcar passengers fared worse. While the percentage of scheduled streetcar trips missed dropped from 7.7% in 1981 to 6.9% in 1982, the actual number of missed trips rose nearly 14% to almost 20,000. Total scheduled streetcar trips for 1982 were 26% higher than in 1981, due primarily to the reopening of the Mattapan-Ashmont shuttle and the resumption of service along Huntington Avenue to Arborway after an as yet unexplained one year delay. At first glance, one might assume that service performance had improved as the increase in scheduled trips was higher than the increase in missed trips. However, service performance was worse during the third quarter, after both of the aforementioned services had been reinstated and after the combined ruinous effects of a strike and a severe winter storm during the second quarter.

Vehicle breakdowns, primarily on the Green Line, affected nearly 25% of all scheduled trips, causing delays for a large number of commuters. Upon the reopening of the full length of the Arborway Line, Boeing LRVs, which had been providing shuttle service between Government Center and Brigham Circle, were shifted to the Beacon Street line to Cleveland Circle. LRVs are now exclusively providing service along the Highland Branch to Riverside, Commonwealth Avenue to Boston College, and Beacon Street to

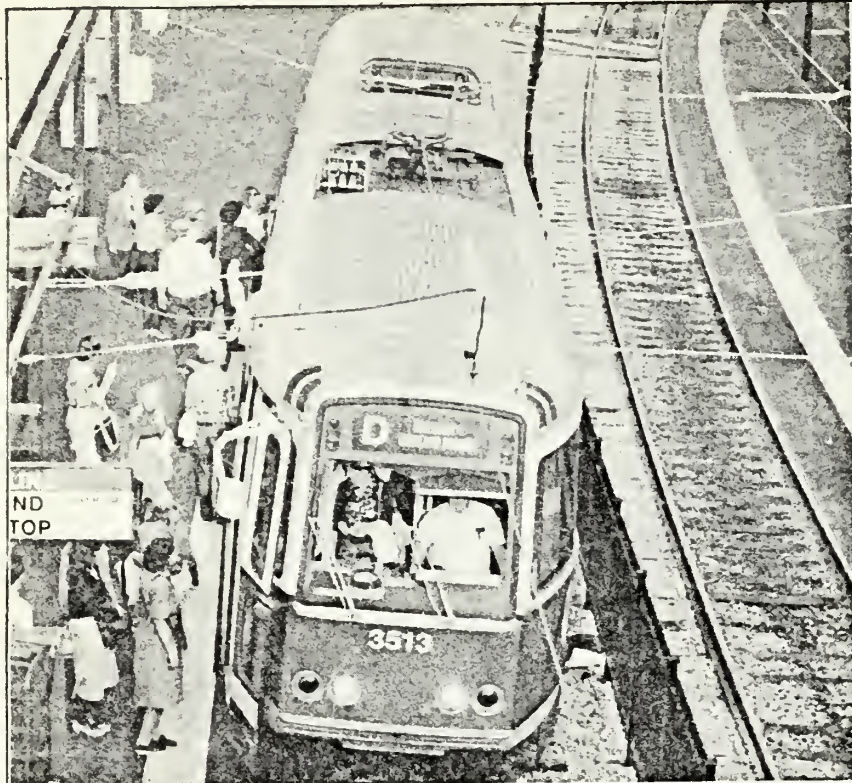


Cleveland Circle. In addition, LRVs are occasionally used for Park Street-Northeastern University duties. Older PCC cars are now used only on the Arborway Line and on the Mattapan-Ashmont shuttle.

Rush-hour streetcar availability grew steadily worse during 1982 with the shortfall reaching nearly 10% of the vehicle requirement during the fourth quarter. The problem of peak-hour vehicle shortfalls may have been considerably aggravated by the management decision to increase the LRV requirement to 80 during the Summer timetable when records indicated that between January and June, 1982, LRV availability never attained that level.

During the summer of 1982, the Beacon Street Line was closed for a track rehabilitation program. When the project was completed in September, Beacon Street passengers were treated to a smoother ride and Brookline residents welcomed the quieter operation of streetcars along Beacon Street.

Scheduling and dispatching problems continue to plague the Green Line, particularly in the Central Subway where all four branches converge. There remains no mechanism for maintenance of the proper headway of Green Line vehicles between Copley Junction and Government Center, the busiest section of the line. Recommended for immediate consideration is the installation of portable radios in all PCC cars to assure that Arborway Line operators are kept abreast of service developments. This is important both in the Central Subway and along the surface portion of the line where delays caused by the interface with automobile traffic are numerous and lengthy.



## STREETCAR LINES

**B BOSTON COLLEGE**

**C CLEVELAND CIRCLE**

**D RIVERSIDE**

**E ARBORWAY**

**M MATTAPAN-ASHMONT**

### STREETCAR LINES SERVICE PERFORMANCE

QTR	SCHEDULED CAR TRIPS	CAR TRIPS #	NOT RUN %	CAUSES OF MISSED TRIPS AS A % OF TRIPS MISSED				VEHICLE BREAKDOWNS PER 100 SCHD TRIPS	RUSH HOUR EQUIPMENT SHORTFALL %
				VEHICLE NOT AVAIL	CREW NOT AVAILABLE	DISABLED VEHICLE	MISC		
1	67548.00	4901.00	7.26	38.72	39.40	7.18	14.71	7.15	5.59
2	72153.00	5595.00	7.75	11.27	53.47	5.31	29.96	5.80	7.28
3	70966.00	6723.50	9.47	22.02	53.48	7.84	16.66	6.47	8.00
4	73920.00	2540.50	3.44	17.67	52.27	10.06	20.00	5.82	9.69
TOTAL 1982	284587.00	19760.00	6.94	22.56	49.83	7.25	20.37	4.87	7.71
TOTAL 1981	224431.00	17379.00	7.70	29.90	57.90	7.60	4.60		
TOTAL 1980	228922.00	11669.00	5.10	43.70	35.70	12.20	9.90		

### STREETCAR LINES SCHEDULED MILEAGE

QTR	WEEKDAY	SATURDAY	SUNDAY	TOTAL
1	824522	139398	72812	1036732
2	879073	149937	86364	1115374
3	1078158	173518	119370	1371046
4	1040980	159367	127358	1327705
TOTAL 1982	3822733	622220	405904	4850857
TOTAL 1981	3269225	526874	314539	4110638
CHANGE (%)	16.93	18.10	29.05	18.01

# 1982 MBTA Service Performance

With the completion of the capital work along the Beacon Street line, virtually the entire surface portion of the Green Line has been rebuilt to high quality standards. Awaiting reconstruction are the Central Subway between Haymarket Square and the three portals beyond Kenmore Station at Park Drive on the Highland Branch, St. Mary's Street on the Beacon Street line, and at Blandford Street on the Commonwealth Avenue line. In addition, the Huntington Avenue subway branch along with the viaduct between North Station (upper level) and Lechmere remain in need of track and catenary reconstruction.

Construction of the Green Line's main repair facility at Reservoir is nearing completion and should be ready for marginal operations during 1983. Completion of this critical facility should result in fewer non-revenue miles and quicker turnaround time for cars needing repairs. The Reservoir facility has direct track connections to the Highland Branch, the Beacon Street, and Commonwealth Avenue lines.

#### BUS AND TRACKLESS TROLLEY

MBTA bus and trackless trolley service performance, expressed in terms of scheduled trips missed, improved considerably during 1982. The incidence of missed trips dropped 17% to nearly 42,000. Bus and trackless trolley vehicle availability was nearly 100% during 1982, a significant factor in the reduction of missed trips. Missed trips due to vehicle unavailability declined 97% to under 300, or less than one per day. Employee-related missed trips increased by 40% to over 27,000.



A number of critical issues must be addressed by MBTA management, namely bus schedule adherence, preventive bus maintenance, and bus scheduling efficiency. The MBTA failed to place more stringent controls on bus schedule performance during 1982, and Advisory Board spot checks found incidents of bus trips departing terminals late or not operating along designated routes. These issues raise questions about management supervision and training.

Maintenance records supplied by the Automotive Equipment Maintenance Department show that critical preventive maintenance is not being performed as scheduled, allowing a substantial Commonwealth and Federal investment in new rolling stock to fall into disrepair. A recent General Accounting Office report dealing with maintenance of Federally-funded bus fleets cited the MBTA as deficient in preventive maintenance. Of 541 inspections for 155 randomly selected buses during the one-year period ending in March 1982, few were performed within 500 miles of schedule. Eighty-five percent were late by at least 500 miles, seventy-eight percent by at least 1,000 miles, and 62% by at least 2,000 miles.

The MBTA received 168 new 40-foot transit coaches from Flyer Industries of Winnipeg, Manitoba, Canada. Half of these new vehicles are equipped with wheelchair lifts in the front entrance. In addition, tie-downs are provided allowing simultaneous transportation of two wheelchair-confined passengers. The lift-equipped vehicles are being phased into service on a number of region-wide routes previously designated as accessible routes. Included are:

ROUTE 400/455	Salem-Boston via Central Sq., Lynn
ROUTE 111	Woodlawn-Haymarket Busway via Chelsea and City Square, Charlestown
ROUTE 326	West Medford-Haymarket Busway Express via Interstate Route I-93
ROUTE 76	Hanscom AFB-Harvard Sq. via Concord Tpke.
ROUTE 230	Brockton Line-Quincy Center Station

Certain MBTA bus routes are operating at capacity. Routes such as the 77 Arlington Heights Limited, the 1 Harvard-Dudley, and the 29 Egleston-Mattapan, are prime candidates for additional trips or higher-capacity vehicles. The MBTA has recently solicited requests from qualified contractors for supplying the MBTA with 20-30 articulated coaches. These vehicles, long in use in Europe, are now gaining acceptance in many US cities as solutions to the problem of providing more capacity in the face of limited funding capabilities. Articulated coaches, which "bend" in the middle, can carry up to 50% more passengers than a conventional 40-foot bus.





## NORTH SHORE LYNN BUS GARAGE

### LYNN GARAGE SERVICE PERFORMANCE

QTR	SCHEDULED BUS TRIPS	BUS TRIPS NOT RUN #	BUS TRIPS NOT RUN %	CAUSES OF MISSED TRIPS AS A % OF TRIPS MISSED				VEHICLE BREAKDOWNS PER 100 SCHED TRIPS
				VEHICLE NOT AVAIL	OPERATOR NOT AVAIL	DISABLED VEHICLE	MISC	
1	43030.00	474.00	1.10	13.40	19.83	58.65	8.12	1.32
2	41450.50	1105.50	2.67	3.03	74.67	17.82	4.48	1.50
3	40500.00	769.50	1.90	.78	66.67	28.65	3.90	1.39
4	40080.00	221.00	.55	2.26	17.87	49.55	30.32	1.37
TOTAL 1982	165060.50	2570.00	1.56	4.20	57.28	31.32	7.20	1.39
TOTAL 1981	154887.00	2750.00	1.70	15.20	35.30	22.20	27.10	
TOTAL 1980	133988.00	1868.00	1.40	1.70	26.50	49.30	22.20	

### LYNN GARAGE SCHEDULED MILEAGE

QTR	WEEKDAY	SATURDAY	SUNDAY	TOTAL
1	640742	74651	20776	736169
2	629137	74648	23003	726788
3	676446	74648	31554	782648
4	617768	69316	26400	713484
TOTAL 1982	2564093	293263	101733	2959089
TOTAL 1981	2422564	296578	94486	2813628
CHANGE (%)	5.84	-1.12	7.67	5.17

## NORTH & NORTHWEST CHARLESTOWN & FELLSWAY GARAGES



### CHARLESTOWN & FELLSWAY GARAGES SERVICE PERFORMANCE

QTR	SCHEDULED BUS TRIPS	BUS TRIPS NOT RUN #	%	CAUSES OF MISSED TRIPS AS A % OF TRIPS MISSED				VEHICLE BREAKDOWNS PER 100 SCHED TRIPS
				VEHICLE NOT AVAIL	OPERATOR NOT AVAIL	DISABLED VEHICLE	MISC	
1	73077.00	1159.00	1.59	1.90	30.41	35.46	32.23	.76
2	70566.00	2892.50	4.10	.05	60.62	9.92	29.41	.48
3	70224.00	690.50	.98	.51	61.12	36.13	2.71	.48
4	72960.00	523.50	.72	.38	50.53	48.14	.96	.29
TOTAL 1982	286827.00	5265.50	1.84	.55	53.03	22.78	23.63	.50
TOTAL 1981	310424.00	6914.00	2.20	15.20	35.40	22.20	27.30	
TOTAL 1980	410635.00	7879.00	2.00	14.80	23.40	32.10	25.70	

### CHARLESTOWN & FELLSWAY GARAGES SCHEDULED MILEAGE

QTR	WEEKDAY	SATURDAY	SUNDAY	TOTAL
1	882314	108472	33107	1023893
2	869078	109151	33013	1011242
3	970440	118695	42663	1131798
4	922064	112658	42448	1077170
TOTAL 1982	3643896	448976	151231	4244103
TOTAL 1981	3688596	472126	183770	4344492
CHANGE (%)	-1.21	-4.90	-17.71	-2.31



# **NORTHWEST** **CHARLESTOWN GARAGE, SOMERVILLE DIVISION**

## **SOMERVILLE GARAGE (@ CHARLESTOWN) SERVICE PERFORMANCE**

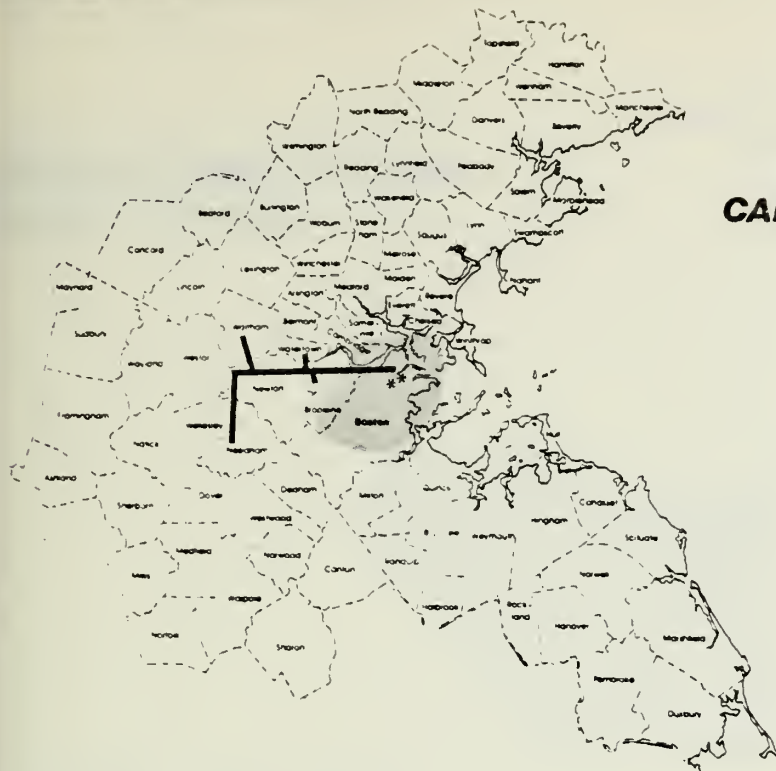
QTR	SCHEDULED BUS TRIPS	BUS TRIPS NOT RUN #	%	CAUSES OF MISSED TRIPS AS A % OF TRIPS MISSED				VEHICLE BREAKDOWNS PER 100 SCHED TRIPS
				VEHICLE NOT AVAIL	OPERATOR NOT AVAIL	DISABLED VEHICLE	MISC	
1	54503.00	742.00	1.36	8.09	34.57	48.18	9.16	(INCLUDED
2	53852.00	1712.00	3.18	1.34	72.40	16.30	9.96	IN
3	53725.50	1126.00	2.10	2.27	55.64	30.95	11.15	CHARLESTOWN
4	53430.00	534.00	1.00	.19	42.23	47.00	10.58	TOTALS)
TOTAL 1982	215510.50	4114.00	1.91	2.66	57.07	30.04	10.22	
TOTAL 1981	218406.00	8828.00	4.00	49.80	19.50	18.20	12.50	
TOTAL 1980	239982.00	5305.00	2.20	3.70	4.70	6.70	5.70	

## **SOMERVILLE GARAGE (@ CHARLESTOWN) SCHEDULED MILEAGE**

QTR	WEEKDAY	SATURDAY	SUNDAY	TOTAL
1	611020	91854	25424	728298
2	614198	92520	28844	735562
3	669489	92890	32370	794749
4	618698	86255	34528	739481
TOTAL 1982	2513405	363519	121166	2998090
TOTAL 1981	2459422	356358	122300	2938080
CHANGE (%)	2.19	2.01	-.93	2.04



# CENTRAL BOSTON & TURNPIKE EXPRESS BUSES CABOT & ALBANY STREET BUS GARAGES



## CABOT & ALBANY STREET GARAGES SERVICE PERFORMANCE

QTR	SCHEDULED BUS TRIPS	BUS TRIPS NOT RUN #	BUS TRIPS NOT RUN %	CAUSES OF MISSED TRIPS AS A % OF TRIPS MISSED				VEHICLE BREAKDOWNS PER 100 SCHED TRIPS
				VEHICLE NOT AVAIL	OPERATOR NOT AVAIL	DISABLED VEHICLE	MISC	
1	126702.00	2972.00	2.35	.87	56.90	41.89	.34	1.50
2	119505.00	5630.50	4.71	.14	77.36	21.50	.99	1.38
3	120463.50	3058.50	2.54	.62	63.50	35.77	.03	1.24
4	119070.00	1592.50	1.34	2.39	31.21	64.93	1.48	1.21
TOTAL 1982	485740.50	13253.50	2.73	.68	64.03	34.58	.68	1.33
TOTAL 1981	595333.00	20030.00	3.50	21.00	42.00	31.60	5.40	
TOTAL 1980	594880.00	19160.00	3.20	16.00	31.70	44.10	8.30	

## CABOT & ALBANY GARAGES SCHEDULED MILEAGE

QTR	WEEKDAY	SATURDAY	SUNDAY	TOTAL
*1	1397348	174970	45868	1618186
2	1421464	177973	51035	1650472
3	1558641	180585	57261	1796487
4	1454086	171353	62360	1687799
TOTAL 1982	5831539	704881	216524	6752944
TOTAL 1981*	5669710	698879	218751	6587340
CHANGE (%)	2.85	.86	-1.02	2.51

\* DOES NOT INCLUDE REPLACEMENT BUS SERVICE FOR THE DORCHESTER BRANCH RECONSTRUCTION PROJECT ON THE RED LINE.



## SOUTHWEST BOSTON BARTLETT GARAGE

### BARTLETT GARAGE SERVICE PERFORMANCE

QTR	SCHEDULED BUS TRIPS	BUS TRIPS NOT RUN #	%	CAUSES OF MISSED TRIPS AS A % OF TRIPS MISSED				VEHICLE BREAKDOWNS PER 100 SCHED TRIPS
				VEHICLE NOT AVAIL	OPERATOR NOT AVAIL	DISABLED VEHICLE	MISC	
1	85078.00	3746.00	4.40	21.08	26.35	29.63	22.94	4.78
2	78050.50	4955.50	6.35	1.20	61.29	11.42	26.09	2.84
3	73196.50	2144.00	2.93	.93	62.50	22.95	13.62	2.51
4	65970.00	1241.50	1.88	.08	31.29	23.08	45.55	2.23
TOTAL 1982	302295.00	12087.00	4.00	7.20	47.59	20.31	24.90	3.19
TOTAL 1981	368422.00	8824.00	2.40	6.20	48.50	19.30	25.70	
TOTAL 1980	228922.00	7014.00	3.06	9.70	38.60	18.50	32.70	

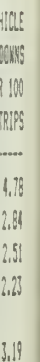
### BARTLETT GARAGE SCHEDULED MILEAGE

QTR	WEEKDAY	SATURDAY	SUNDAY	TOTAL
#1	801598	111200	25648	938446
2	777810	110764	28065	916639
3	680256	99776	20451	790483
4	664764	84487	23760	773011
TOTAL 1982	2924428	396227	97924	3418579
TOTAL 1981*	3191492	444221	133676	3769389
CHANGE (%)	-8.37	-10.80	-26.75	-9.31

\* DOES NOT INCLUDE REPLACEMENT BUS SERVICE FOR THE DORCHESTER BRANCH RECONSTRUCTION PROJECT ON THE RED LINE.



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## TRACKLESS TROLLEY LINES

### TRACKLESS TROLLEY SERVICE PERFORMANCE

QTR	SCHEDULED BUS TRIPS	BUS TRIPS NOT RUN #	%	CAUSES OF MISSED TRIPS AS A % OF TRIPS MISSED				VEHICLE BREAKDOWNS PER 100 SCHED TRIPS
				VEHICLE NOT AVAIL	OPERATOR NOT AVAIL	DISABLED VEHICLE	MISC	
1	15592.00	196.00	1.26	.00	45.66	30.36	23.98	.89
2	16012.00	456.50	2.85	.55	81.71	7.45	10.30	.53
3	16720.50	260.00	1.55	.00	69.23	21.92	8.85	.38
4	15990.00	67.00	.42	.00	35.82	53.73	10.45	.36
TOTAL 1982	64314.50	979.50	1.52	.22	68.04	19.04	12.66	.53
TOTAL 1981	76656.00	865.00	1.10	.20	48.20	33.60	17.70	
TOTAL 1980	120765.00	1341.00	1.10	.40	31.00	48.10	19.80	

### TRACKLESS TROLLEY LINES SCHEDULED MILEAGE

QTR	WEEKDAY	SATURDAY	SUNDAY	TOTAL
1	88406	0	0	88406
2	91805	0	0	91805
3	103269	0	0	103269
4	94054	0	0	94054
TOTAL 1982	377534	0	0	377534
TOTAL 1981	442098	23088	0	465186
CHANGE (%)	-14.60	-100.00	.00	-18.84

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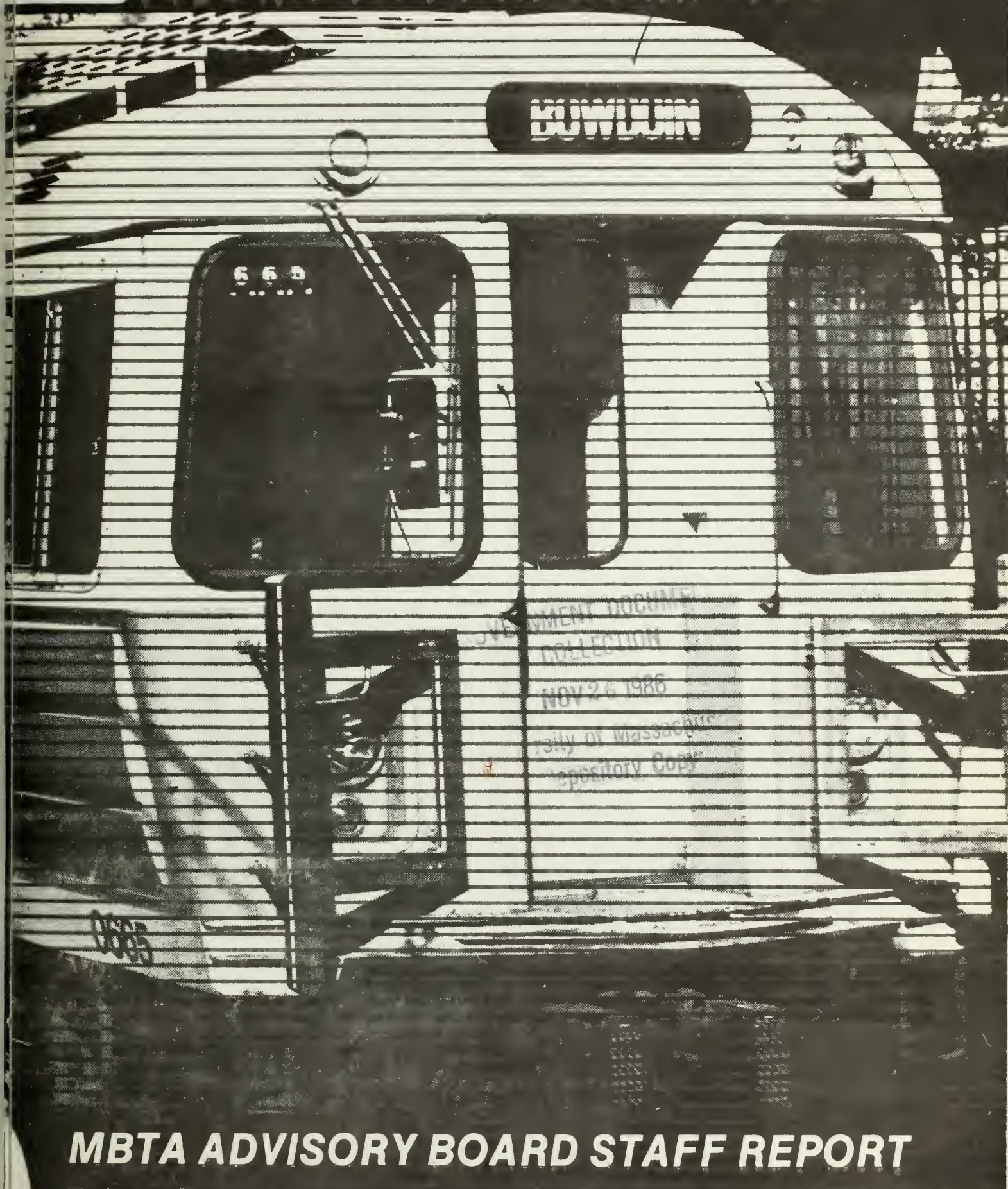
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# 1983 MBTA PERFORMANCE



## MBTA ADVISORY BOARD STAFF REPORT





MBTA ADVISORY BOARD  
STAFF REPORT

May 25, 1984

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## EXECUTIVE SUMMARY

The MBTA Advisory Board's Annual Report on 1983 MBTA Performance finds that 1983 was a promising year for the T. Symbolic of the promise of better days ahead for public transportation were political support for the region's system of public transit, improvements in public safety, expansion of The Ride and the pre-paid pass program, the building of a management team, greater emphasis on service planning and an improvement in public communication through service announcements in stations, on board vehicles and on the radio.

Other findings of the Report are:

- Management Rights reforms passed by the Legislature (Ch. 581) and implemented by the T have reversed the dangerous spiral of decreasing service and increasing costs. In 1983, the T delivered 3 million more miles of service at a cost only 2 cents more per mile than in 1981, the lowest two year increase in the T's history. 1983 cost savings exceed \$20 million.
- The 1983 Net Cost of Service was \$194.8 million, just under the amount authorized by the Advisory Board.
- The Authority operated more than 98% of all scheduled trips for the first time since the Advisory Board has kept records. Although Red Line performance improved from 1982 levels, the percent of missed trips did not meet Advisory Board standards; and service performance on rapid transit in general deteriorated from 1982.
- Operating departments finished the year under budget; non-operating departments exceeded budgets. Additional resources were expended primarily for support and administrative services and for heavy maintenance.
- Although fare revenue increased 1.7%, there is inadequate information to evaluate changes in ridership, and measures to increase income were minimal.
- Reforms in administration of Workers' Compensation were initiated, although it is too early to assess their results, and costs again rose sharply (more than 50%). Per person industrial absence hours increased less than in the previous two years.
- Overtime costs exceeded budget by 36%, and better manpower planning in response to early identification of priority programs is recommended to help reduce such costs.
- Use of the management information system improved in 1983, and regular reporting of operating performance measures began.



## OVERVIEW - A YEAR OF PROMISE

1983 was a year of promise at the MBTA. The first year of the second Dukakis administration began with the Governor's pledge to build a "first rate" public transportation system. This public commitment to the MBTA was the first sign of promise at an agency which has been plagued by a number of serious problems over the past several years.

Both a cause and a symptom of these problems was a high management turnover rate at all levels of the Authority. Thus a second sign of promise at the T was the decision to keep James F. O'Leary as General Manager. O'Leary had been brought on board in April of 1981 as the third head of the Authority during the administration of Edward J. King, and by the end of 1982 he had mended a number of political fences and had brought a measure of stability to the Authority. (cf. Advisory Board 1982 annual report.) Retaining O'Leary was a clear signal that MBTA stability and rebuilding were serious administration objectives.

The T's goals for 1983 included identification and correction of major problems as perceived by the public. Chief among them was the perception of the T as crime ridden. A new Chief of the MBTA Police Department was the second major personnel decision made at the Authority in 1983. A series of public safety initiatives followed (cf. p. 52), designed both to improve security on the T and to change the public's perception that MBTA vehicles and stations were dangerous. A perception of increased

public safety tends to discourage crime and encourage ridership; it is to some degree self-fulfilling and brings a dual benefit.

Poor communication with passengers was a second area in which the T had received severe criticism. Considerable progress was made in 1983 in addressing this concern: the T is talking. There are announcements in stations, on trains and on the radio informing passengers of service conditions. This simple change is a significant improvement, although it is not performed consistently well throughout the system. It is strongly consumer oriented. It acknowledges passengers and their need to make choices, and it reduces some of their risk in choosing public transportation. It builds rider confidence and support by showing a willingness on the T's part to be more open about its problems. It shows that the T knows about and suggests that the T cares about and has some control over the quality of service. It symbolizes a commitment to serving the public, and we give this change unreserved praise.

A number of bright, technical personnel were hired in 1983 to join seasoned veterans among T staff. Financial Manager of the Railroad Operations Directorate (commuter rail) and Manager of Workmen's Compensation are two of the too long vacant positions filled in 1983 in a program to hire needed management staff. New collective bargaining agreements were reached with most organized employees. The MBTA appears to have progressed toward relatively stable labor relations and the rebuilding of a capable management team.

Other promising actions in 1983 were an expansion of The Ride, the para transit program serving handicapped passengers; a

recognition that "scheduled trips missed" is an inadequate measure of service performance and the use of an additional indicator (throughput) to supplement missed trip information; the establishment and regular reporting to the Board of Directors of operating performance indicators; and the initiation of corridor studies to determine whether or not current bus routes are effectively serving riders. In 1983 the MBTA undertook an evaluation of the use of part-time operators at the request of the Advisory Board and also followed an Advisory Board suggestion to contract with a private firm for administration of Workmen's Compensation.

The Authority attempted to lengthen its time horizon for operations planning, with an increased organizational and staff emphasis on service planning and evaluation. It initiated two Federally funded programs with direct impact on operations planning, one to integrate capital and operations planning and one to analyze and evaluate MBTA performance compared to that of other transportation systems.

The capability of the management information system (MIS) was enlarged and, more important, the value of the "I" in "MIS" began to be realized. This realization is due, in large part, to the new operations director, William Stead, whose hands on experience with such systems is paving the way for a user oriented attitude about what an MIS should do. The fact that the T is beginning to use, not simply have an up to date management information system is one of the most significant 1983 accomplishments.

The Authority recognized problems with its record on



affirmative action. It chose not to ignore those problems, but to commit to a program to improve performance in that area.

The MBTA opened new stations, including the operationally difficult opening of the partially completed Harvard Square station which required that trains run without passengers to Davis Square Station before turning around.

Either ridership increased or revenue collection improved (perhaps because of a more visible police presence) or both. The result was a 1.8% increase in revenue (cf. p. 18). On commuter rail, where ridership data is collected directly, there is no doubt that there was a significant (13%) increase in ridership.

1983 was the first in many years with no serious confrontations between the Authority and its Advisory Board over threatened service reductions or major budget disputes. Most promising in 1983, however, was the incremental improvement in service performance indicators. That performance is reviewed in detail beginning on page 68.

There were some casualties in 1983. During 1982, whether born of desperation, constant public criticism, leanness, the challenge of initial implementation of management rights or a combination of such factors, there was a certain bold innovation at the T which has given way to caution in 1983. Circumstances have changed. In addition, transit supporters and users had high expectations for the T in 1983, probably unrealistically high given the multitude and severity of operating and organizational problems at the Authority. High expectations can spur performance; they can also engender overcaution.

Fewer mistakes were made in 1983, but fewer risks were taken. Less was accomplished in the area of management rights (cf. p. 11). The establishment of performance measures for operating departments which began in mid-1982 nearly vanished in 1983. The budget was never allocated among departments during the year so managers could not evaluate actual monthly spending compared to planned spending. Maintenance crews continued to fix things after, not before, they were broken. Energy conservation planning was on the back burner, as was "revenue enhancement", automation of scheduling and run cutting, the development of systems to measure on-time performance and the better collection of direct ridership information and revenue.

The ability to try things, to take some reasonable chances is something which stands an organization in good stead. A certain creativity and innovation is necessary for success, and too much caution leads to paralysis. If the Authority is to fulfill the promise of 1983 with performance, it must be boldly dissatisfied with resting on the laurels of incremental improvements.

#### 1984 ISSUES

The MBTA's stated goals for 1983 included taking steps and making decisions now which will improve MBTA service effectiveness and efficiency in 1985, 1987 and beyond and, in the short term, identifying and rectifying major problems as perceived by the public. While some objectives (strengthening the Authority's

ability to make good decisions by building a team of competent, experienced managers) serve both long and short term goals, it is easier to specify actions which meet immediate needs than to articulate strategies for future improvement.

Building for the future, almost by definition, requires current expenditure of precious resources, with no currently visible results. The effectiveness of decisions is thus hard to evaluate. Such decisions are professionally more risky than those with immediately measurable returns. Politically, they are extraordinarily high risk and difficult.

There is a danger in the success of a year of promise. The most important danger is that style will be viewed as a substitute for substance; that form will be considered more important than content; that public relations coups will be mistaken for real service improvements. Easy (station announcements) and expensive (public safety improvements) gains can too easily divert the T from more difficult (productivity increases), more structural (good preventive maintenance) improvements; actions which minimize passenger dissatisfaction can take precedence over programs which maximize public benefit.

The promise and progress of 1983 set an agenda for 1984. One task is to strengthen the gains made in serving passengers better and at the same time allocate resources from the politically rewarding present to the risky building for the future, particularly in the areas of maintenance and planning. Another is to infuse employees with a sense of purpose and maintain a level of labor/management harmony and at the same time reduce costly abuses and improve productivity. Achieving a balance in

these potentially either/or tasks is a tough job which requires that managers be integrated into and function as an effective team. It is not enough that they work hard. They must work well and work well together.

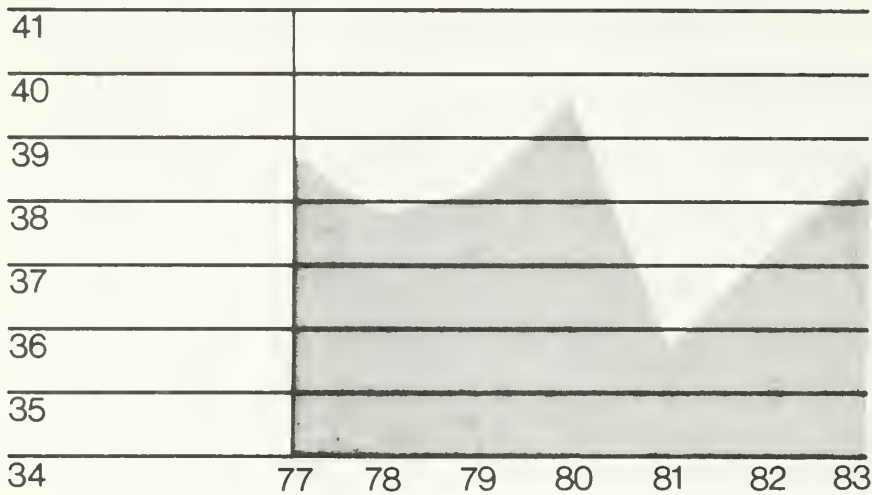
The budget must serve as a tool for managers, not only as a tool to control managers, and at the same time the improvement in expenditure control must be maintained. Additional marketing resources budgeted for FY 1985 must build on the solid, successful performance of the Pass Program and be integrated with analytic service planning efforts, not simply add a layer of PR jobs. Additional resources must go to operating, not support areas.

It is the responsibility of the MBTA Board of Directors and General Manager O'Leary to give direction and set priorities so that the organization can accomplish such tasks. They are the ones who will receive the kudos for delivering on the promise of 1983 or the blame if the organization cannot be managed effectively, but the work to be done requires that they rely on others for much of the decision making. Most of the management team is in place. The most important issue for 1984 is to establish areas of responsibility and to delegate appropriate authority in a manner which allows that team to make effective decisions. The Authority's success in dealing with these management issues in 1984 is critical to the goal of developing the "first rate" transportation system which this administration has promised. The Advisory Board strongly supports this goal, and will continue to provide constructive criticism and performance monitoring in furtherance of such an effort.

## Revenue Miles vs. Cost

**Annual Revenue Miles**

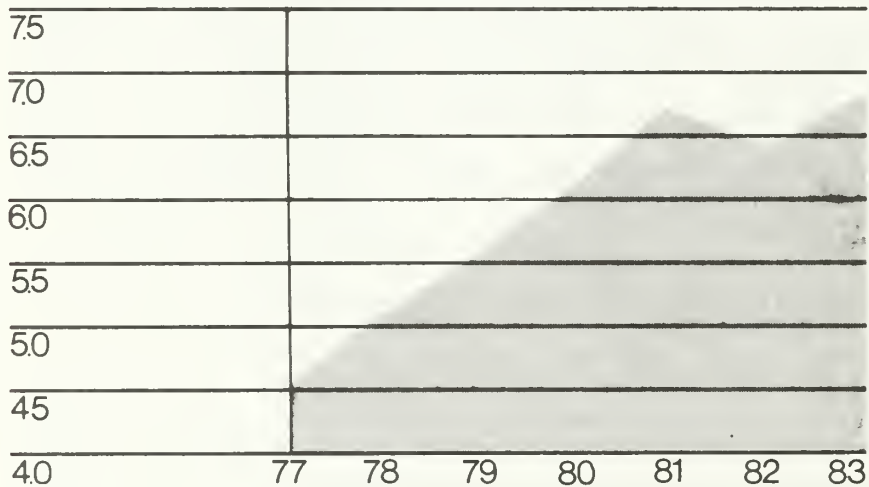
*in millions*



Revenue miles increased 4.3% in 1983.

**Cost per Revenue Mile**

*in dollars*



The cost per revenue mile increased 3.7% in 1983.



## MANAGEMENT RIGHTS

During the two years 1980 and 1981, public transportation revenue miles operated by the Authority decreased 6.7% while the cost of each mile of service rose 20.3%. Over the two years since then (1982, 1983) the harmful trend of increasing inefficiency has been halted, with an 8.2% increase in revenue miles and a 0.3% increase in cost per revenue mile. As predicted in the Advisory Board's 1982 annual report, the dramatic management rights gains of 1982 were not repeated in 1983. Incremental changes in the second full year of implementation of that statute were, as expected, considerably less than the incremental changes the first year. The fact remains, however, that management rights is responsible for dramatic and fundamental improvement in MBTA performance, and in 1983 two of the most dramatic management rights programs, contracting out of services and the use of part time employees, began to mature.

**CONTRACTED SERVICES**      The improvement most visible to users of the system results from the Authority's ability to contract with private firms for work previously done by Authority employees. Janitorial service in Authority buildings and security services on Authority property in addition to station and vehicle cleaning are now done by employees of private firms under contract by the Authority. A list of current contracts and the estimated current savings is given on the following page.

CLEANING & SECURITY CONTRACTS  
AWARDED UNDER MANAGEMENT RIGHTS PROVISIONS

	COST -----	EST. SAVINGS -----
John's Janitorial Service, Inc. Cleaning of Red, Orange, Blue and Green Line vehicles	\$447,026	\$863,540
LDE, Inc. DBA Cleanway Transit Systems Daily cleaning of buses	700,899	649,231
Consolidated Service Corporation Various station cleaning	394,415	170,590
Empire Cleaning, Inc. Various station cleaning	405,312	206,811
Macke Building Services Various station cleaning	444,511	470,809
Triangle Services of Massachusetts, Inc. Janitorial services, various Authority buildings	751,000	439,248
Delta Security Corporation Watchmen services - various locations	162,763	309,243
	-----	-----
TOTALS	\$3,305,926	\$3,114,472

The program to contract the performance of these critical jobs to private sector firms brings a double benefit: all evidence which the Advisory Board has, including that from numerous phone calls and first hand observations, indicates that stations and vehicles are consistently cleaner since contracts were let; and the cost is just over half of what it would be if Authority employees were performing the work. MBTA personnel supervising and monitoring the contractors generally report satisfactory results. If a job is not satisfactory, contractors are not paid and must redo a cleaning task.

The program appears to be improving as the Authority gains more experience. For the few contracts which have been rebid since they were initially awarded in 1982, a lower price than the original bid was secured. As more contracts come up for rebidding, the expectation is that greater competition in bidding will hold cost down, and the Authority's greater experience in managing such work will provide for consistently good quality.

The cost of contracting such services under management rights is actually decreasing as a percentage of what it would cost to do the work in house. No MBTA employees are on layoff. The T made special efforts to retrain employees who previously performed services now done under contract. Work quality has improved as both the private firms and the Authority learned from experience. As this program continues to mature, the Authority should explore other areas where it might be advantageous to hire private firms, for example for additional maintenance and some revenue collection tasks. From 1982 to 1983, more than half of the \$1.7 million in increased passenger revenue was spent in

increased revenue collection costs, particularly for collector and gatemen wages. The private sector may be able to maximize efficiencies in revenue collection which would allow increased resources for provision of direct transportation services.

**PART TIME EMPLOYEES** The January, 1983 Healy arbitration award to the Carmen's Union (Local #589) limited the number of part time employees the Authority could hire in any job classification to 15% of full time employees in that classification. That award provision would have required the MBTA to lay off part time operators, but that and three other provisions limiting use of part timers were challenged by the Authority as contrary to statutory management rights and were severed from the award in a late August decision of the Suffolk Superior Court. The Authority did not hire additional part time operators prior to that decision as it had planned to do, and did not have sufficient time after August to hire and train more part time operators for the September schedules. The fact that adding part time operators was inexplicably delayed past the winter timetable until Spring of 1984 means that a full year of increased savings was lost.

During 1983, however, at the request of the Advisory Board, the Authority conducted an evaluation of its use of part time operators and had an opportunity to explore additional scheduling options, some of which will be implemented in 1984 when increased use of part time employees (operators, door guards, bus fuelers and collectors) is planned.

Long term, the opportunity to consolidate and reevaluate the

use of part time employees may prove valuable to the Authority. Current savings with part time operators are \$6 to \$7 million annually even though the Healy award provided part time employees wage parity with full timers. The Authority is now in a better position to push forward with its use of part time personnel with better information on the parameters within which cost savings are significant.

PRODUCTIVITY AND OTHER GAINS      In addition to the dramatic \$9 to \$10 million annual savings from use of contracted services and part time employees, management rights legislation has provided the T with a number of additional ways to increase the efficiency of public transportation services. "Past practices," previously included in non specific terms in the labor agreement with Local #589, were deleted by the Healy award in order that the agreement conform with the management rights statute. Such practices were responsible for significant waste, inefficiency and low productivity in the T's use of its labor resources. They made management of the Authority a convoluted exercise in anachronistic decision making. They were supportive of featherbedding, contrary to the interests of either passengers or taxpayers and contrary to accepted management practices elsewhere in both the public and private sectors.

Productivity gains and cost avoidance measures implemented by the Authority under management rights have produced significant savings which are hard to quantify. Millions of dollars have been saved by: allocation of overtime based on availability and merit; assignment of work to qualified, available (rather than



simply senior) employees; assignment of additional tasks to idle personnel; use of an appropriate number of staff (rather than two or three times that number) to carry out specific jobs; the ability to retain personnel in job classifications where they had received training; the ability to schedule certain work during times when it is least disruptive to service; and the broadening of some job definitions.

The Authority is now able to purchase goods which previously had to be produced internally. Such decisions can now be made based on quality and cost. Specific jobs, such as the Blue Line track improvements or vehicle rehabilitations undertaken in 1983, can now be contracted to outside firms when such a decision will improve the quality or reduce the cost and time involved in completing the job.

Many groups and individuals, including the Advisory Board, were responsible for the passage of Chapter 581 in late 1980. Implementation was delayed because of union challenges until after the Federal Appeals Court affirmed the legality of the Act's provisions on October 22, 1981. After two full years, the verdict is in. The Legislature (and those who encouraged its decision) deserves credit and thanks for landmark legislation which has allowed the Authority to provide improved service at an annual cost saving approximating the \$30 million originally estimated by the Advisory Board.

The MBTA's implementation of management rights provisions is an unequivocal success story. The dire predictions of doom made by union members have not occurred. Some disruptions from such fundamental changes were inevitable and Authority manage-

ment, lacking experience, may have at times lacked finesse. Nonetheless, no MBTA employee is on layoff and a job at the T remains one of the best jobs around, with better compensation than equivalent work elsewhere in the public sector.

Management rights is, however, a success story not yet ended. Productivity levels at the Authority are still not consistent with the expenditure of hard earned tax dollars. While the majority of T employees serve the public with skill and concern, too many still have reason to believe the old adage that getting a job at the T is like dying and going to heaven. MBTA management has a responsibility to make further improvements in public transportation which are possible with management rights. The Legislature and other supporters of Chapter 581 have a responsibility to safeguard the gains made over the past two and a half years and to ensure that the Authority continues to have and to use the tools now available to it which, for the first time, make the MBTA manageable in ways which have long been considered normal elsewhere.

# REVENUE/RIDERSHIP

The largest source of MBTA income is passenger revenue which totaled nearly \$95 million in 1983, an increase of \$1.7 million (1.8%) from 1982. Because rapid transit fares were reduced in May, 1982, passenger revenue for the first four months of 1983 was lower than for comparable months of the previous year. During the subsequent eight accounting periods, revenue showed an increase from 1982.

PERIOD*	1982 FARE REVENUE	1983 FARE REVENUE	CHANGE	% CHANGE
1	7,728,335	7,332,442	(395,893)	(5.12)
2	8,008,090	7,451,624	(566,466)	(6.95)
3	9,186,678	8,837,826	(348,852)	(3.80)
4	7,744,799	7,583,688	(161,111)	(2.08)
5	6,912,031	7,595,219	683,188	9.88
6	8,114,089	8,302,705	188,616	2.32
7	6,673,383	7,247,904	574,521	8.61
8	6,875,520	7,140,695	265,175	3.86
9	8,617,914	8,912,442	294,528	3.42
10	7,616,708	7,811,441	194,733	2.56
11	7,176,593	7,716,316	539,723	7.52
12	8,618,882	9,007,783	388,962	4.51
	-----	-----	-----	
	\$93,272,962	\$94,940,086	\$1,667,124	1.79

\*Accounting periods are four weeks except for periods 3, 6, 9 and 12 which are five weeks. There is an additional day in Period 1, 1982 and in Period 12, 1983.

Changes in other income line items for 1983 include a 12% increase in Revenue From Other Railway Operations, the result of re-bidding parking lot concessions and the opening of lots at Braintree and Quincy-Adams Stations. The drop of \$413,468 in Non-Operating Income reflects lower interest rates and a smaller spread between tax-exempt and short term investment rates.

Past Advisory Board reports have included estimated monthly ridership as derived from revenue -- and a section indicating the inadequacy of ridership data so derived. In order to strengthen the position of those who argue that the MBTA must develop a program for more direct and more frequent collection of accurate ridership information, this report will not include ridership estimates, calculated by dividing revenue by an estimated average fare. The latest available average fare estimates would suggest a 9.3% ridership increase during the first four months of the year and slightly less than a 5% increase during the remaining eight months. There is a strong likelihood that either or both of these measures is wrong.

Just as there is no accurate or systematic way to document gross changes in ridership, the manner in which the Authority evaluates utilization of any particular service it offers is inadequate. Data is subject to an unacceptably broad range of error, making it insufficient for planning, scheduling and evaluating service which meets the needs of current or potential riders. When the new Harvard Square station opened and the scheduling of Red Line capacity in relatively small time increments became critical, top level management personnel (including

the Director of Operations) had to personally gather and evaluate direct ridership data in order to maximize peak period service available to commuters.

Neither the Advisory Board nor the MBTA knows with any accuracy how many people use the T, what T services they use, how many passengers transfer among particular modes or routes, what the fare mix is on any given mode or route (number of passengers using passes, reduced fares, free transfers or paying full fare), how many elderly or students are served or what the peak vs. off peak or weekday vs. weekend utilization is. While there is a cash accounting by bus garage and rapid transit line, there is no way to know how much of the revenue comes from reduced fares or, if applicable, how much from each fare zone. It is impossible to allocate pass revenue (nearly one third of all 1983 passenger revenue) to specific routes, because there is no regular information gathered on pass use.

In November of 1981, 1982 and 1983, the T and the Central Transportation Planning Staff (CTPS) conducted ridership and fare mix sampling in an attempt to estimate a number of the above parameters. 1981 and 1982 information was used for the agency's Environmental and Socioeconomic Impact Report on the 1981 MBTA fare increase. Although the work is well done and the data is better than no data, point sampling once a year is not enough.

Once more we recommend that the Authority develop a program for collecting ridership information on a regular basis which can be used to determine changes in ridership, fare mix and service effectiveness. Such information is critical to service planning and important in developing fare policy.



## NET COST OF SERVICE

A comparative statement of the 1982 and 1983 net cost of MBTA service is given on the following pages. The statement can be aggregated into the broader categories of sources and uses shown below, useful for an overview of the bottom line net cost of service which is paid by Massachusetts taxpayers. The \$195 million net cost of service, plus an estimated \$10 million in Commonwealth interest costs is included in city, town and Commonwealth fiscal year 1985 budgets.

	<u>MBTA 1983 BUDGET SUMMARY</u> (000's)			
	1983	1982	Variance	% Change
	-----	-----	-----	-----
SOURCES:				
Fare Revenue	(94,940)	(93,272)	(1,667)	(1.79)
Other Income	(13,232)	(12,880)	(352)	(2.74)
State Contract Asst.	(55,218)	(46,664)	(8,553)	(18.33)
Federal Operating Asst.	(21,338)	(23,199)	1,861	8.02
USES:				
MBTA Provided Services	260,261	240,574	19,687	8.18
Contracted Services	45,168	46,767	(1,598)	(3.42)
Total Debt	74,086	70,165	3,921	5.59
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Net Cost of Service	\$194,788	\$181,489	\$13,298	7.33
Commonwealth Int. Costs	10,200	7,532	2,667	35.42
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TOTAL NET COST	\$204,988	\$189,021	\$15,966	8.45

Public transportation is one of the services (education, health and safety, highway building and maintenance, and environmental protection are others) deemed to be of sufficiently broad public benefit to be supported by tax revenue. \$100 million of the \$205 million will be charged to those who pay property taxes

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY  
NET COST OF SERVICE : 1983 , 1982

	TOTAL ACTUAL CY 1983	TOTAL ACTUAL CY 1982	VARIANCE (\$)	VARIANCE
INCOME				
Revenue from transportation	94,940,086	93,272,962	1,667,124	1.79%
Revenue from other rwy. operations	3,784,834	3,365,599	419,235	12.46%
Non-operating income	7,689,134	8,102,602	( 413,468)	( 5.10%)
Gas & diesel taxes reimbursable	484,588	489,400	( 4,812)	( .98%)
Reimbursement outside district	1,274,052	922,589	351,463	38.10%
TOTAL INCOME	108,172,694	106,153,152	2,019,542	1.90%
OPERATING WAGES & FRINGE BENEFITS				
Wages	145,869,188	136,898,306	8,970,882	6.55%
Gen & adm cost capitalized credit	( 1,356,705)	( 1,721,868)	365,163	(21.21%)
MBTA Pensions	20,537,685	19,793,376	744,309	3.76%
F.I.C.A.	11,047,111	10,466,784	580,327	5.54%
Workers compensation	6,054,221	3,997,759	2,056,462	51.44%
Accident & sickness insurance	399,982	391,213	8,769	2.24%
Group life insurance	622,734	916,364	( 293,630)	(32.04%)
Blue Cross/Blue Shield	20,947,840	18,430,479	2,517,361	13.66%
Unemployment insurance	77,000	195,000	( 118,000)	(60.51%)
Uniform & workers clothes	552,128	561,471	( 9,343)	( 1.66%)
Fringe benefits cost capitalized	( 7,296,003)	( 7,072,080)	( 223,923)	3.17%
TOTAL OPERATING WAGES & FRINGE BENEFITS	197,455,181	182,856,804	14,598,377	7.98%
MATERIAL & OTHER ITEMS				
Material & other items	36,981,092	32,638,002	4,343,090	13.31%
Injuries & damages	4,278,971	2,884,881	1,394,090	48.32%
Interest Unfunded Debt	14,411,611	21,384,355	(6,972,744)	(32.61%)
Fuel	20,589,066	21,204,360	( 615,294)	( 2.90%)
Taxes (other than above)	957,252	990,464	( 33,212)	( 3.35%)
Railroad commuter subsidy	43,226,412	45,254,048	(2,027,636)	( 4.48%)
Local service subsidies	1,942,515	1,513,087	429,428	28.38%
TOTAL OPERATING EXPENSES AND TAXES	319,842,100	308,726,001	11,116,099	3.60%

# FIXED CHARGES

Interest on funded debt (MTA)	4,713,326	3,448,135	1,265,191	36.69%
Interest on funded debt (MBTA)	35,039,330	29,635,751	5,403,579	18.23%
Payment on funded debt (MTA)	2,752,926	2,631,926	121,000	4.60%
Payment on funded debt (MBTA)	17,015,000	12,900,835	4,114,165	31.89%
Miscellaneous & Bank Charges	154,333	164,444	( 10,111)	( 6.15%)
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TOTAL FIXED CHARGES	59,674,915	48,781,091	10,893,824	22.33%

# TOTAL CURRENT EXPENSES COST OF SERVICE IN EXCESS OF INCOME

	379,517,015	357,507,092	22,009,923	6.16%
	271,344,321	251,353,940	19,990,381	7.95%

# STATE FIN. CONTRACT ASSISTANCE STATE FIN. CONTRACT ASSISTANCE FEDERAL OPERATING ASSISTANCE

	3,000,000	3,000,000	0	.00%
	52,218,050	43,664,900	8,553,150	19.59%
	21,338,201	23,199,913	(1,861,712)	( 8.02%)
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# NET COST OF SERVICE (LOSS)

	194,788,070	181,489,127	13,298,943	7.33%
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in the 78 cities and towns of the T district. The remaining amount will be borne more broadly by all the business and individual taxpayers (including those in the district) who pay taxes to the Commonwealth of Massachusetts.

The largest cost increase is for services provided by MBTA personnel. A major factor is a 4.3% increase in revenue service provided in 1983. However, the cost per revenue mile rose \$0.24. The 3.7% increase was slightly more than the rate of increase of the Boston Consumer Price Index (3.4%). The tables on page 74 indicate that direct transportation and vehicle maintenance costs on a per revenue mile basis increased only 1 cent, or 0.4%. And costs for fuel and plant maintenance, again on a per revenue mile basis, actually decreased 3 cents. Although the cost per revenue mile is only 2 cents higher than it was in 1981, the increased 1983 unit costs appear to be the result of additional expenditures in support and administrative services. Heavy maintenance at the Everett shops increased \$.05 per revenue mile.

Year	Cost of MBTA Provided Service*	Annual Revenue Miles	Cost Per Revenue Mile	Percent Change
1983	\$260,261,562	38,658,042	\$6.73	3.7%
1982	240,574,511	37,067,965	6.49	(3.3)
1981	239,522,470	35,717,187	6.71	10.5
1980	240,267,954	39,613,068	6.07	8.8
1979	213,868,608	38,295,961	5.58	9.2
1978	194,293,302	37,991,810	5.11	

\*Total operating costs less debt costs, Commuter Rail & Local service subsidy

Year	Fare Revenue per Rev. Mi.	Percent Change	Net Cost per Rev. Mi.	Percent Change	Fare Coverage Ratio#
1983	\$2.46	(2.4%)	\$4.27	7.6%	36.5%
1982	2.52	10.0	3.97	(10.2)	38.8
1981	2.29	37.1	4.42	0.5	34.2
1980	1.67	12.8	4.40	7.3	27.6
1979	1.48	2.1	4.10	12.0	26.5
1978	1.45		3.66		28.4

#Fare revenue divided by cost of MBTA provided service

As the tables above indicate there are clouds in the 1983 picture. The fare revenue per revenue mile decreased after several years of growth (due in large part to increases in fares). While data is inadequate to assess the cause(s) of per revenue mile fare income change, it should be noted that during the first four months of 1982, rapid transit base fares were \$0.15 higher than during subsequent months and that continued growth in the use of pre-paid passes tends to lower the per mile fare revenue, all other things remaining equal. The pass program significantly increased sales in 1983 (cf. p. 51). Programs designed to measure utilization of service are now underway at the T. A disturbing conjecture is that the 1983 added revenue miles were not used as fully as the average service mile in 1982. Unless lower density service was added for valid policy reasons or unless the additional service is more fully utilized as more potential riders find out about it, the Authority must question the effectiveness of the routing and/or frequency of the additional revenue miles operated in 1983.

The net effect of the 3.7% increase in cost per revenue mile and the 2.4% decrease in revenue per revenue mile is a 7.6% in-



crease in the net cost per revenue mile. This increase, which sharply reverses the trend of 1981 and 1982, must be born by taxpayers. The change in the direction of the trend of both the net cost per revenue mile and the fare coverage ratio should be the subject of scrutiny and of policy determination by the Board of Directors.

A continuing decrease in the fare coverage ratio is not likely to be politically acceptable no matter how good T service becomes. The only ways to avoid such a decrease are a growth in ridership and/or a growth in fares concomitant with cost increases. While fare increases will never be politically popular, an absence of policy regarding fare changes is, at best, short sighted. The December 1983 final Environmental and Socio-economic Impact Report on the 1981 T fare increase recommends that a "policy be adopted establishing a fare revenue goal as a percentage of the annual expense of operating MBTA services," such goal to be "reviewed annually and fare schedules adjusted, as appropriate, in conjunction with the MBTA's annual budget development process...."

The Advisory Board has recommended that the Authority develop a comprehensive program to maximize all income, including fare revenue, consistent with service policy. Ineffective leadership in the Treasurer/Controller's office during 1983 is one reason for an absence of progress in this area. Such a program, as well as the development of policies for fare revenue goals are necessary objectives for 1984.

Debt service is the second aggregate cost category which increased from 1982 to 1983. Spurred by the availability of

Federal funds and by the age and operating characteristics of the system, the MBTA has engaged in a major program of capital investment (cf. p. 61). Approximately 80% of the cost of such investment is funded by the Federal government, with a 20% match provided by general obligation bonds issued by the Authority. The principal and interest costs for these bonds is a portion of the operating budget called "Fixed Charges" and approximately 90% of the annual amount is paid by the Commonwealth as contract assistance for debt. This element of public transportation cost has grown more than any other in the past few years and is expected to peak in the middle of this decade. The increase of Fixed Charges as a percentage of the total T budget from 12% in 1979 to 16% in 1983 has, to some degree, masked the more moderate increases in operating costs. Fixed Charges plus \$14 million in interest on short term debt accounted for nearly 20% of total T costs in 1983. A comprehensive evaluation of the public costs and benefits of the investment in public transportation "infrastructure" is overdue.

The Authority contracts with private firms for the provision of some transportation services. Commuter rail service, operated by the Boston and Maine Corporation is by far the largest, but the Authority also contracts with some private bus carriers and for provision of services to the handicapped (The Ride). Approximately 16% of the 1983 cost of service in excess of income supported these services which generally receive high marks from consumers.

A number of line items in the comparative net cost of service

statement show significant increases or decreases from 1982. The largest operating increase is the wage line. Wage increases in new union contracts, increased overtime costs and manpower additions account for most of the 6.6% increase in that line item which represents 81% of the \$11 million rise in total operating expenses. Total fringe benefits costs also increased, especially health insurance. The Blue Cross/Blue Shield increase of 13.7% signals the rising cost of medical care as well as the lack of tight Authority administrative oversight of its self-insured program. Recent steps have been taken by the Authority to gain greater control over the costs of health insurance, and performance in 1984 should indicate whether or not its efforts have been successful. The decrease in Group Life cost is the result of favorable rebidding of the contract. Workers Compensation costs will be discussed in the following section of the report. Increases in total labor costs of 8% account for 66% of the \$22 million increase in all MBTA costs from 1982 to 1983.

The \$4 million growth in the line item "Materials and Other Items" reflects costs of contracting with private firms and additional consultant services used during 1983. The Injuries and Damages line item rose 48% in 1983, reflecting a number of large awards and the increased propensity to litigate by members of the public. The Advisory Board has expressed concern over the significant growth of the cost of Injuries and Damages and recommended that the Authority establish a special reserve to increase flexibility in managing settlements of suits.

The fall of interest rates from the highs of 1982 to the more moderate levels of 1983 saved the Authority almost \$7

million in interest charges on its annual short term borrowing for cash flow purposes.

Line item and departmental expenditures in 1983 compared to budgets authorized by the Advisory Board are reviewed in the following section of the report. The Authority made no reallocation of the approved budget during the year.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY : NET COST OF SERVICE  
BUDGETED vs. ACTUAL

	ADV. BOARD AUTHORIZATION CY 1983	TOTAL ACTUAL CY 1983	VARIANCE (\$)	VARIANCE (%)
INCOME				
Revenue from transportation	95,149,080	94,940,086	( 208,994)	( .22%)
Revenue from other rwy. operations	3,735,480	3,784,834	49,354	1.32%
Non-operating income	6,272,582	7,689,134	1,416,552	22.58%
Gas & diesel taxes reimbursable	541,200	484,588	( 56,612)	(10.46%)
Reimbursement outside district	1,446,200	1,274,052	( 172,148)	(11.90%)
TOTAL INCOME	107,144,542	108,172,694	1,028,152	.96%
OPERATING WAGES & FRINGE BENEFITS				
Wages	145,892,991	145,869,188	( 23,803)	( .02%)
Gen & adm cost capitalized credit	( 1,553,570)	( 1,356,705)	196,865	(12.67%)
MBTA Pensions	21,200,683	20,537,685	( 662,998)	( 3.13%)
F.I.C.A.	11,122,935	11,047,111	( 75,824)	( .68%)
Workers compensation	4,493,016	6,054,221	1,561,205	34.75%
Accident & sickness insurance	380,647	399,982	19,335	5.08%
Group life insurance	992,346	522,734	( 369,612)	(37.25%)
Blue Cross/Blue Shield	21,540,771	20,947,840	( 592,931)	( 2.75%)
Unemployment insurance	120,000	77,000	( 43,000)	(35.83%)
Uniform & workers clothes	751,632	552,128	( 199,504)	(26.54%)
Fringe benefits cost capitalized	( 7,510,270)	( 7,296,003)	214,267	( 2.85%)
TOTAL OPERATING WAGES & FRINGE BENEFITS	197,431,181	197,455,181	24,000	.01%
Material & other items	37,060,509	36,981,092	( 79,417)	( .21%)
Injuries & damages	5,000,000	4,278,971	( 721,029)	(14.42%)
Interest Unfunded Debt	14,674,614	14,411,611	( 263,003)	( 1.79%)
Fuel	20,043,835	20,589,066	540,231	2.69%
Taxes (other than above)	990,837	957,252	( 33,585)	( 3.39%)
Railroad commuter subsidy	45,026,471	43,226,412	(1,800,059)	( 4.00%)
Local service subsidies	2,096,051	1,942,515	( 153,536)	( 7.33%)
TOTAL OPERATING EXPENSES AND TAXES	322,328,498	319,842,100	(2,486,398)	( .77%)



FIXED CHARGES				
Interest on funded debt (MTA)	4,594,846	4,713,326	118,480	2.58%
Interest on funded debt (MBTA)	35,420,877	35,039,330	( 381,547)	( 1.08%)
Payment on funded debt (MTA)	2,752,926	2,752,926	0	.00%
Payment on funded debt (MBTA)	17,015,000	17,015,000	0	.00%
Miscellaneous & Bank Charges	150,000	154,333	4,333	2.89%
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TOTAL FIXED CHARGES	59,933,649	59,674,915	( 258,734)	( .43%)
TOTAL CURRENT EXPENSES				
COST OF SERVICE IN EXCESS OF INCOME	382,262,147	379,517,015	(2,745,132)	( .72%)
	275,117,605	271,344,321	(3,773,284)	( 1.37%)
STATE FIN. CONTRACT ASSISTANCE				
STATE FIN. CONTRACT ASSISTANCE	3,000,000	3,000,000	0	.00%
FEDERAL OPERATING ASSISTANCE	55,878,045	52,218,050	(3,659,995)	( 6.55%)
	21,383,202	21,338,201	( 45,001)	( .21%)
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NET COST OF SERVICE (LOSS)	194,856,358	194,788,070	( 68,288)	( .04%)

## 1983 BUDGET PERFORMANCE

Actual expenditures by the MBTA for Calendar Year 1983 measured against the Advisory Board approved budget for the same period shows the Authority on target for most major categories of spending. Gains and losses in particular line items balanced out. The Authority's strict adherence to the bottom line is to be commended (the net cost of service was 0.04% under the Advisory Board's budget).

Though in general the T's budget performance for 1983 was quite good, it is important to note that the approved budget was an unusual hybrid, and comparison of the approved and actual budget does not show as full a picture as usual of a year long effort to manage within a spending plan. In the Fall of 1982 the Authority presented the Advisory Board an 18 month budget covering the period January 1983 through June 1984 (the period of transition from a calendar year to a fiscal year budget cycle). The Advisory Board chose to act on only the first 12 months of that submission.

In August of 1983, the Authority submitted a supplemental budget including a full budget for January to June 1984 and a supplemental for January to December of 1983 covering wage increases won in arbitration. Since the first six months expenditures were history at that point, the Advisory Board acted upon a budget for the period 7/1/83 to 6/30/84 - a fiscal year 1984 budget. The approved budget for Calendar Year 1983 is the combination of actual expenditures for January to June plus the

first six months of the approved Fiscal Year 1984 budget. Deviations from the approved budget are thus variances occurring between July and December 1983. In that context the several overruns are of even greater concern than at first glance, since they represent just six months of overspending.

A few line items deserve special note. The significant increase in non-operating income was the result, in part, of the completion of a sale-leaseback agreement at year's end which brought an additional \$741,165 to Authority coffers. The 35% overrun in Workers' Compensation expense reflects the continuing serious problem of the escalating cost of industrial accidents. A drastic rise in medical costs, the increase in weekly compensation for claimants (to \$320.29 per week) and an increase in claims themselves combine to account for the exorbitant increase in this line item. The first two components are substantially outside the influence of the MBTA; the third has been the focus of Authority efforts in the last six months to contain costs. Despite T claims of success in stemming the tide of claims, the evidence in hand is still too inconclusive to tell if the hiring of an outside claims firm and the filling of the long vacant position of Director of Workers' Compensation has been effective in controlling claims and costs (see related section, p.44).

DEPARTMENTAL PERFORMANCE      An analysis of changes in departmental expenditures between CY 1982 and CY 1983 shows an overall increase in departmental costs of 8.2%. Expenses of the Operations Directorate, which includes all operating departments, rose 5.8%

BUDGET PERFORMANCE BY DEPARTMENT

DEPARTMENT	CY 1982 ACTUAL	CY 1983 BUDGET	CY 1983 ACTUAL	CY 1983 ACTUAL/BUDGET	% CHANGE CY 1983 ACTUAL/BUDGET	CY83-82 ACTUAL	% CHANGE CY83/CY82 ACTUAL
EXECUTIVE							
wages	1,194,764	1,316,117	1,322,356	6,239	.47%	127,592	10.68%
materials	261,474	310,020	293,943	( 16,077)	( 5.19%)	32,469	12.42%
services	343,964	259,606	376,572	116,966	45.06%	32,608	9.48%
other	( 19,603)	0	( 15,263)	( 15,263)	( 22.14%)	4,340	( 22.14%)
TOTAL	1,780,599	1,885,743	1,977,608	91,865	4.87%	197,009	11.06%
OPERATIONS							
wages	2,214,320	2,624,430	2,508,571	( 115,859)	( 4.41%)	294,251	13.29%
materials	9,375	17,966	9,657	( 8,309)	( 46.25%)	282	3.01%
services	20,231	58,176	191,404	133,228	229.01%	171,173	846.09%
local services	1,574,466	2,096,051	1,954,478	( 141,573)	( 6.75%)	380,012	24.14%
TOTAL	3,818,392	4,796,623	4,664,110	( 132,513)	( 2.76%)	845,718	22.15%
TRANSPORTATION							
wages	70,084,788	71,861,664	72,727,607	865,943	1.21%	2,642,819	3.77%
materials	67,125	65,033	50,489	( 14,544)	( 22.36%)	( 16,636)	( 24.78%)
services	167,236	1,048,500	1,103,835	55,335	5.28%	936,599	560.05%
uniforms	355,553	321,296	396,789	75,493	23.50%	41,236	11.60%
TOTAL	70,674,702	73,296,493	74,278,720	982,227	1.34%	3,604,018	5.10%
ENGINEERING							
wages	24,195,340	25,852,877	25,517,021	( 335,856)	( 1.30%)	1,321,681	5.46%
materials	3,956,394	3,700,000	3,704,861	4,861	.13%	( 251,533)	( 6.36%)
services	2,200,385	2,847,191	3,241,504	394,313	13.85%	1,041,119	47.32%
utilities	9,548,114	10,697,844	8,449,614	( 2,248,230)	( 21.02%)	( 1,098,500)	( 11.50%)
fuel for power	873,534	598,906	946,949	348,043	58.11%	73,415	8.40%
power inter	7,001,773	4,837,845	7,642,278	2,804,433	57.97%	640,505	9.15%
power pur	5,861,847	7,609,075	5,255,085	( 2,353,990)	( 30.94%)	( 606,762)	( 10.35%)
other	657,516	312,051	374,699	62,648	20.08%	( 282,817)	( 43.01%)
TOTAL	54,294,903	56,455,789	55,132,011	( 1,323,778)	( 2.34%)	837,108	1.54%



RAIL EQUIP							
wages	12,599,015	14,753,211	14,592,628	( 160,583)	( 1.09%)	1,993,613	15.82%
materials	4,580,766	5,059,022	6,442,784	1,383,762	27.35%	1,862,018	40.65%
services	774,966	936,016	1,464,976	528,960	56.51%	690,010	89.04%
other	11,021	0	73,297	73,297		62,276	565.07%
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TOTAL	17,965,768	20,748,249	22,573,685	1,825,436	8.80%	4,607,917	25.65%
GREEN LINE							
wages	6,477,720	6,858,504	6,870,159	11,655	.17%	392,439	6.06%
materials	1,629,845	2,356,622	1,801,818	( 554,804)	( 23.54%)	171,973	10.55%
services	818,583	953,422	617,932	( 335,490)	( 35.19%)	( 200,651)	( 24.51%)
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TOTAL	8,926,148	10,168,548	9,289,909	( 878,639)	( 8.64%)	363,761	4.08%
AUTOMOTIVE							
wages	10,464,551	11,426,533	11,019,286	( 407,247)	( 3.56%)	554,735	5.30%
materials	2,910,895	3,049,448	2,891,248	( 158,200)	( 5.19%)	( 19,647)	( .67%)
services	599,224	1,101,614	1,176,237	74,623	6.77%	577,013	96.29%
gas & dis.	7,467,209	7,003,006	6,744,753	( 258,253)	( 3.69%)	( 722,456)	( 9.68%)
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TOTAL	21,441,879	22,580,601	21,831,524	( 749,077)	( 3.32%)	389,645	1.82%
TREASURER/CONT							
wages	3,468,095	3,710,992	3,673,540	( 37,452)	( 1.01%)	205,445	5.92%
materials	125,111	100,000	105,397	5,397	5.40%	( 19,714)	( 15.76%)
services	355,551	466,085	766,153	300,068	64.38%	410,602	115.48%
copy machine		0					
postage		11,085	12,800	1,715	15.47%	12,800	
insurance	1,385,497	482,721	182,891	( 299,830)	( 62.11%)	( 1,202,606)	( 86.80%)
sinking fund		175,000		( 175,000)	( 100.00%)	0	
fuel tax		352,086	141,736	( 210,350)	( 59.74%)	141,736	
misc tax 7 tol	990,464	638,751	815,517	176,766	27.67%	( 174,947)	( 17.66%)
uniforms	20,150	18,000	1,745	( 16,255)	( 90.31%)	( 18,405)	( 91.34%)
other	255,700	870,109	1,121,850	251,741	28.93%	866,150	338.74%
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TOTAL	6,600,568	6,824,829	6,821,629	( 3,200)	( .05%)	221,061	3.35%



DEPARTMENT	CY 1982 ACTUAL	CY 1983 BUDGET	CY 1983 ACTUAL	CY 1983 ACTUAL/BUDGET	% CHANGE CY 1983 ACTUAL/BUDGET	CY83-82 ACTUAL	% CHANGE CY83/CY82 ACTUAL
MIS							
wages	546,925	696,778	836,065	139,287	19.99%	289,140	52.87%
materials	65,304	61,800	65,330	3,530	5.71%	26	.04%
services	405,889	466,100	367,324	( 98,776)	( 21.19%)	( 38,565)	( 9.50%)
TOTAL	1,018,118	1,224,678	1,268,719	44,041	3.60%	250,601	24.61%
LAW							
wages	1,151,484	1,293,035	1,316,052	23,017	1.78%	164,568	14.29%
materials	2,783	5,000	3,515	( 1,485)	( 29.70%)	732	26.30%
Services	234,501	257,000	344,537	87,537	34.06%	110,036	46.92%
inj. & dam.	2,884,880	5,000,000	4,278,975	( 721,025)	( 14.42%)	1,394,095	48.32%
TOTAL	4,273,648	6,293,035	5,943,079	( 349,956)	( 5.56%)	1,669,431	39.06%
POLICE							
wages	1,849,726	2,467,167	2,553,950	86,783	3.52%	704,224	38.07%
materials	10,380	3,497	2,967	( 530)	( 15.16%)	( 7,413)	( 71.42%)
services	107,425	256,017	254,112	( 1,905)	( .74%)	146,687	136.55%
uniforms	32,346	212,336	87,148	( 125,188)	( 58.96%)	54,802	169.42%
TOTAL	1,999,877	2,939,017	2,898,177	( 40,840)	( 1.39%)	898,300	44.92%
REAL ESTATE							
wages	70,167	84,649	75,390	( 9,259)	( 10.94%)	5,223	7.44%
materials	1,107	1,070	170	( 900)	( 84.11%)	( 937)	( 84.64%)
services	346,045	40,113	203,482	163,369	407.27%	( 142,563)	( 41.20%)
utilities		290,983	191,983	( 99,000)	( 34.02%)	191,983	
others	( 161,354)	0	( 128,266)	( 128,266)		33,088	( 20.51%)
TOTAL	255,965	416,815	342,759	( 74,056)	( 17.77%)	86,794	33.91%
PERSONNEL							
wages	827,659	894,795	826,798	( 67,997)	( 7.60%)	( 861)	( .10%)
materials	79,214	13,682	17,160	3,478	25.42%	( 62,054)	( 78.34%)
services	298,405	311,446	433,716	122,270	39.26%	135,311	45.34%
wkmn's comp	3,997,761	4,493,016	6,054,220	1,561,204	34.75%	2,056,459	51.44%
TOTAL	5,203,039	5,712,939	7,331,894	1,618,955	28.34%	2,128,855	40.92%

# MATERIALS

wages	1,551,536	1,801,044	1,860,753	59,709	3.32%	309,217	19.93%
materials	37,577	24,154	24,656	502	2.08%	( 12,921)	( 34.39%)
services	14,503	19,416	48,368	28,952	149.11%	33,865	233.50%
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TOTAL	1,603,616	1,844,614	1,933,777	89,163	4.83%	330,161	20.59%

# GENERAL ACTIVITIES

wages	( 1,519,614)	( 407,713)	( 1,246,416)	( 838,703)	205.71%	273,198	( 17.98%)
materials	794,285	( 63,215)	( 234,806)	( 171,591)	271.44%	(1,029,091)	(129.56%)
services	1,718,699	1,335,634	2,742,267	1,406,633	105.32%	1,023,568	59.55%
work clothes	173,572	200,000	66,446	( 133,554)	( 66.78%)	( 107,126)	( 61.72%)
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TOTAL	1,166,942	1,064,706	1,327,491	262,785	24.68%	160,549	13.76%

# NOT UNDER DEPTS

fixed charges	48,781,091	59,933,649	59,674,915	( 258,734)	( .43%)	10,893,824	22.33%
interest u.d.	21,384,355	14,674,614	14,411,611	( 263,003)	( 1.79%)	(6,972,744)	( 32.61%)
fringes	49,998,216	55,237,382	53,545,352	( 1,692,030)	( 3.06%)	3,547,136	7.09%
unemployment	195,000	120,000	77,000	( 43,000)	( 35.83%)	( 118,000)	( 60.51%)
commuter	45,254,048	45,026,471	43,226,412	( 1,800,059)	( 4.00%)	(2,027,636)	( 4.48%)
fringes cap	( 8,793,948)	( 8,169,086)	( 7,296,003)	( 873,083)	( 10.69%)	1,497,945	
			( 1,356,705)	( 1,356,705)		(1,356,705)	
class c invent	72,263	39,066	69,528	30,462	77.98%	( 2,735)	
taxes		0	77,000	77,000		77,000	
other		0					
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TOTAL	156,891,025	166,862,096	162,429,110	( 4,432,986)	( 2.66%)	5,538,085	

accounting for 52% of the \$20 million increase. The non-operating departments, which account for 29% of the added expense, increased 25.7% over previous year expenditures. Wages in non-operating departments rose 16.9%; total wages in the operating departments increased only 5.7%. This disparity reflects in part a 4.1% rise in non-operating manpower while operating manpower had a smaller increase of 1.4%. It also reflects a substantial upgrading in salaries for management personnel which constitute a higher percentage of non-operating departments and management rights efficiencies which are available primarily in operating departments.

A comparison of total actual expenditures in each department with department budgets for CY1983 indicates that most operating departments were right on target. In the aggregate they came in 0.2% under budget. Non-operating departments on the other hand overspent by 4.4%. In sum, tight control was exercised over operating personnel, and available resources were shifted to support services. While there may be adequate justification for the 1983 emphasis on rebuilding support and management capability, the relative allocation of resources to non-operating vs. operating areas should be a matter of conscious policy. It is not certain that such was the case in 1983 except for additions to the Police Department. This fact and the related changes in manpower among functions which is discussed below are matters of some concern to the Advisory Board.

## MANPOWER

As the chart on the following page indicates, Calendar Year 1983 average monthly manpower (expressed in full time equivalents) increased by 97 persons from the first to last quarter, representing a 1.6% increase for the Authority as a whole. Transportation services gained the equivalent of 161 positions (5.4%), while the maintenance area lost 97 places (4.0%). Additions to the Executive, the Police and the Treasurer/Controller Departments raised administrative and support services over the four quarters by 5%.

Engineering and Maintenance registered the greatest percentage loss in manpower (8.9%), the largest dollar overtime increase (\$495,881) and the highest percentage increase (119%) in overtime of any operating department from 1982 to 1983. More thought and better planning of manpower needs in future years is critical. Labor costs were 76% of the total cost of MBTA provided service in 1983. Budgets are approved based on certain assumptions about manpower needs. When needed, budgeted manpower is not maintained, and overtime hours are substituted, productivity is probably reduced and costs increase. Such increases represent poor administration of the Authority's major resource.

In contrast to practice in recent years, there was little shifting of personnel between capital and operating budgets in 1983. Where manpower increased, such as in administrative and support staff, it did so in both capital and operating staff. Likewise, the decline in the number of maintenance employees was parallel in both sets of books.



# 1983 AVERAGE QUARTERLY MANPOWER BY FUNCTION

FUNCTION	1st Quarter		2nd Quarter		3rd Quarter		4th Quarter	
	Cap.	Oper.	Cap.	Oper.	Cap.	Oper.	Cap.	Oper.
TRANSPORTATION SERVICES	0	2886	0	2905	0	3005	2	3043
MAINTENANCE SERVICES	101	2074	99	2058	101	2033	88	1990
ADMINISTRATIVE & SUPPORT SERVICES	33	509	41	511	40	519	39	530
CONSTRUCTION & COMMUTER RAIL	361	29	364	22	<sup>360</sup> <del>398</del>	<sup>25</sup> <del>377</del>	373	28
TOTALS	494	5499	504	<del>2591</del> 5496	<del>540</del> 501	2929	501	<del>2547</del> 5470

## 1983 MANPOWER AVERAGES

	Quarter 1		Quarter 2		Quarter 3		Quarter 4	
	Cap.	Oper.	Cap.	Oper.	Cap.	Oper.	Cap.	Oper.
Executive	4	91	4	97	4	98	5	99
Operations	1	69	2	52	1	53	2	52
Transportation	0	49	0	47	0	46	0	46
Rail lines	0	965	0	970	0	1003	1	1051
Surface	0	1872	0	1888	0	1956	1	1946
Engineer	12	904	14	891	12	886	11	868
Maint. Shops	2	332	3	335	0	327	0	314
Equip. Mt	86	838	82	831	90	820	76	807
Construct.	361	12	364	5	363	9	373	11
Treas/Contr.	8	120	14	120	13	122	13	120
Law	3	44	4	44	4	45	2	48
Real Estate	5	6	5	6	5	6	4	6
Police	0	72	0	74	0	77	0	101
Personnel	0	31	0	28	0	29	0	30
Materials	12	75	12	73	13	74	13	73
Railrd. Oper	0	18	0	17	0	16	0	16



## OVERTIME

Operating budget overtime expenses for CY 1983 rose 20% over CY1982 and were 36% over the Advisory Board approved budget for 1983. The largest dollar variances from the approved budget were in the Transportation (\$897,828) and Engineering and Maintenance (\$339,512) Departments. The greatest percentage variances over budget were in the Executive Department (143%) and MIS (238%).

The 20% increase in cost represents an 8% increase in overtime hours, higher wages for all employees and a different mix of manpower using overtime in 1983. Of the departments performing maintenance functions, only Engineering and Maintenance showed an increase in overtime hours, which more than doubled from 21,939 to 44,277 hours. Increases in other maintenance departments reflected wage increases between 1982 and 1983, not an increase in hours. Within Transportation, hours worked on overtime rose 16% over 1982 levels for an increase of 21,634 hours.

Of the 100 employees earning the highest overtime wages (ranging from \$8,988 to \$25,501 for the year), 20 were T police officers and 27 were from departments dealing with problems on the Red Line (Signal Maintenance, Rail Equipment at Cabot, etc). With the new police recruits taking their place on the street (and in the subway) in early 1984 and the reduction of crises on the Red Line, overtime should fall substantially starting in January 1984.

While problems on the Red Line in the Fall represent unforeseen instances for which use of overtime may be necessary, overtime budget overruns of the magnitude which occurred in 1983 are not acceptable.

OVERTIME DOLLARS AND HOURS -- 1982 and 1983  
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DOLLARS (OPERATIONS)

Area	1983	1982	% Change
Executive Office	22,384	9,947	125
Director of Operations	192,691	146,927	31
Transportation	2,939,652	2,636,322	12
Engineering & Maintenance	910,870	414,989	119
Maintenance Shops	0	0	
Rail Equip. Maintenance	433,748	445,040	( 3)
Surface Carhouses	489,221	412,140	19
Auto Equip. Maintenance	348,944	336,845	4
Construction Directorate	1,276	2,302	( 45)
Treas./Cont.	247,580	285,435	( 13)
MIS	33,705		
Law	0	73	( 100)
Real Estate Management	0	0	
Police	431,970	340,823	27
Personnel Directorate	2,183	0	
Materials	3,895	7,642	( 49)
Safety & Training	0	0	
Commuter Rail Directorate	1,336	412	224

HOURS (OPERATIONS)

Area	1983	1982	% Change
Executive Office	1,320	628	110
Director of Operations	9,527	7,986	19
Transportation	157,949	136,316	16
Engineering & Maintenance	44,276	21,939	102
Maintenance Shops	0	0	
Rail Equip. Maintenance	21,973	24,126	( 9)
Surface Carhouses	25,534	47,702	( 46)
Auto Equip. Maintenance	17,109	17,391	( 2)
Construction Directorate	9	70	( 87)
Treas./Cont.	13,801	18,093	( 24)
MIS	1,914		
Law	0	0	
Real Estate Management	5	0	
Police	26,883	21,090	27
Personnel Directorate	129	283	( 55)
Materials	243	460	( 47)
Safety & Training	0	0	
Commuter Rail Directorate	115	23	400

# AVERAGE INDUSTRIAL ACCIDENT, SICK AND TOTAL ABSENCE HOURS

## PER EMPLOYEE

### INDUSTRIAL ACCIDENTS

	1983	1982	1981	1980
1st Quarter	16.17	14.58	7.41	5.76
2nd Quarter	16.44	16.16	9.18	6.19
3rd Quarter	18.54	15.10	10.59	7.50
4th Quarter	15.33	14.03	9.71	5.95
Year	66.48	59.87	36.89	25.40

### SICK

1st Quarter	18.39	21.17	21.22	19.19
2nd Quarter	17.68	19.18	19.59	15.77
3rd Quarter	18.33	17.71	19.98	17.12
4th Quarter	16.94	15.65	16.73	17.75
Year	71.34	73.71	77.52	69.83

### TOTAL ABSENCE

1st Quarter	41.00	41.73	34.02	29.19
2nd Quarter	40.98	44.92	33.85	26.63
3rd Quarter	43.20	40.10	36.08	29.38
4th Quarter	39.37	35.87	31.66	28.19
Year	165.15	162.62	135.61	113.39

Source: Analysis of Sick and Absentee Hours

## ABSENTEEISM

Absenteeism at the T continues to rise. In 1983, 515 man years (40 hour week, 48 week year) of potentially productive time were lost because of employee absence. 43% of this time was sick leave; 41% was for claimed injury; the rest was divided among categories such as suspensions, jury duty, AWOL, bereavement leave, etc.

The total hours lost increased 2% over 1982; hours lost per employee increased 1.6%, a smaller increase than in either of the last two years (19.9% and 19.6% in 1982 and 1981 respectively). Sick hours per employee fell for the second year in a row (3.2%), while time lost per employee due to claimed industrial accidents once again increased. In 1983, on average, each of the more than 6000 Authority employees lost 8.3 days because of reported work related accidents.

Virtually all operating departments registered an increased loss of hours per employee because of claimed accidents. The Engineering and Maintenance Department led with a 20.5% increase. The Police Department was the highest among non-operating areas with a 162% increase per employee. Maintenance services as a group lost 30% more hours per employee because of claimed injury than did transportation services, 236% more than administrative and support services and 556% more than construction and commuter rail services. Transportation services exceeded other functional areas in time lost to illness (30% above that of the maintenance services) and in total absenteeism (23.5 days per man vs. 21.5 days per man in maintenance areas).

Explanations for the significant differences between

transportation and maintenance areas in kinds and amounts of absenteeism would be conjecture at this time, although an analysis of such differences may contribute to the design of better programs to deal with the absentee problem at the Authority.

While there is certainly still room for considerable improvement in loss due to illness, the major concern with absenteeism centers on industrial accidents. Days recorded as lost due to industrial accidents don't necessarily reflect Workers Compensation claims. Alleged accidents which keep an employee from work for less than seven days do not show up among the number of claims processed. Medical bills may never emanate from many such "claims". An employee reporting an accident retains full pay for days lost. If those days lost are less than seven and there are no medical bills, he or she may never be questioned closely about the alleged injury. Labor contract terms provide that the first two days of most sick leave are not paid. Without adequate safeguards and monitoring, alleged accidents can become a convenient way to retain pay while out for a few days on illness or personal business.

The Authority took steps in 1983 to gain better control over Worker's Compensation costs. The success of such efforts will be monitored beginning in FY 1984. Hiring a Manager of Workers' Compensation and contracting with a private firm for the administration of new claims beginning in August, has allowed the Authority to reduce the backlog of medical bills and related claims problems and tighten administrative procedures. A "light



duty" program was planned and has been initiated this Spring.

As the Authority continues its efforts to control Workers Compensation expense, it must separate the myriad issues involved and deal with the phenomenon of the less than seven days absence as well as with the problems of "formal" claims and injuries. Both cases cost the MBTA and the public too much. Further, a thorough study of safety and work hazards with primary focus on the maintenance departments is called for. The assurance of a safe work environment for the majority who take pride in their work needs to be every bit the priority that control of abuse is. .

AVERAGE ABSENT HOURS PER EMPLOYEE

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BY DEPARTMENT  
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SICK HOURS

DEPARTMENT	1983	1982	1981
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Executive	31.61	26.34	20.33
Operations	14.98	15.59	15.17
Transportation	39.70	69.63	46.13
Rail Lines	108.38	112.22	124.18
Surface Lines	74.12	79.12	82.89
Eng. & Maintenance	60.30	64.55	62.00
Maintenance Shops	79.98	81.37	102.57
Equip. Maintenance	64.09	60.02	63.13
Construction	45.51	40.64	41.12
Treasurer/Cont. & MIS*	60.39	58.91	65.43
Law	29.75	52.27	37.68
Real Estate	1.45	4.91	8.17
Police	60.03	71.45	76.77
Personnel	18.44	40.06	23.74
Materials	44.04	41.20	55.04
Rail Operations	25.19	11.44	18.06

INDUSTRIAL ACCIDENT HOURS

Executive	.64	.00	1.34
Operations	.63	.04	.00
Transportation	1.74	2.22	.73
Rail Lines	64.29	63.54	40.19
Surface Lines	68.39	58.85	39.05
Eng. & Maintenance	76.86	63.79	40.25
Maintenance Shops	86.68	73.87	37.80
Equip. Maintenance	98.34	87.99	50.42
Construction	13.75	6.39	1.72
Treas./Cont. & MIS*	10.63	21.04	27.73
Law	.83	.17	8.58
Real Estate	.00	.00	.00
Police	88.14	33.61	32.97
Personnel	.00	.00	.00
Materials	62.37	46.75	16.50
Railroad Operations	.00	.00	.00

Source: Analysis of Sick and Absentee Hours

\* 1981, 1982 MIS with Treasurer/Controller  
1983 MIS with Executive

PER PERSON ABSENTEEISM: FUNCTIONAL AREAS

	TOTAL ABSENTEEISM				
	Q 1	Q 2	Q 3	Q 4	TOTAL
Transportation	46.6	45.6	51.4	44.2	187.8
Maintenance	42.1	43.4	44.5	41.9	171.9
Admin & Support	24.3	20.0	15.1	15.7	75.1
Construction & Comm Rail	14.7	15.2	17.2	17.0	64.1

	SICK LEAVE				
Transportation	21.9	20.6	22.6	20.0	85.1
Maintenance	17.1	16.5	16.3	15.8	65.7
Admin & Support	12.7	10.9	7.6	9.9	41.1
Construction & Comm Rail	11.2	11.9	12.0	9.7	44.8

	INDUSTRIAL ACCIDENT				
Transportation	15.1	15.9	20.0	15.0	66.0
Maintenance	20.0	22.3	22.6	21.0	85.9
Admin & Support	9.3	6.5	5.8	4.0	25.6
Construction & Comm Rail	3.0	2.5	3.2	4.4	13.1

## PASS PROGRAM

This year marks a special anniversary for one of the MBTA's most successful programs. Ten years ago, the T Pass Program was initiated as an experimental program with private firms which made passes available to employees. The experimental program was a success, and a new department was set up in 1976 to run the operation of the Pass Program. A year later, discounts for passholders to museums and other cultural establishments were initiated.

In 1978 a ten percent discount on auto insurance coverage was given to public transportation passholders, and the program expanded with sales to the general public and college students. The first linkage between the MBTA and commuter rail was established with the assistance of the Pass Program. In 1979, banks, post offices and retail outlets began selling passes. A year later electronic readers were set up in subways.

The Pass Program has been consistently successful. For regular users of the T, it offers, first and foremost, convenience. Other advantages include lower transportation cost, reduced car insurance costs and a host of promotional discounts offered by firms or for special events. An increasing number of employers subsidize part or all of the cost of a pass as a benefit for employees. And the Commonwealth of Massachusetts has reinstituted a program, halted during the King administration, to distribute passes to state employees under a payroll deduction plan. The ease, certainty and timing of revenue collection is of great benefit to the Authority. The program has been cited nationally as an example of innovative transit marketing.

Statistics on pass sales for 1982 and 1983 are given below and indicate a 9% growth in number of passes sold. While it is not known how many pass users were new to the system or how many simply switched to a more convenient form of payment, there is no doubt that many buyers consider the availability of passes an incentive to use public transportation. When fares were reduced in May of 1982, the price of the B pass went down from \$27 to \$22. The combination pass changed from a \$40 D pass to a \$36 C pass.

PASS TYPE	# SOLD		CURRENT PRICE	REVENUE		% REVENUE CHANGE
	1982	1983		1982	1983	
A	196,879	198,618	\$18.00	\$3,543,822	\$3,575,124	0.88
B	340,506	389,294	22.00	7,491,132	8,564,468	14.33
C	157,539	279,990	36.00	5,671,404	10,079,640	77.73
D	137,660	50,354	40.00	5,506,400	2,014,160	(63.42)
E	57,223	53,040	48.00	2,746,704	2,545,920	(7.31)
F	7,948	10,915	56.00	445,088	611,240	37.33
	-----	-----		-----	-----	
	897,755	982,211		\$25,404,550	\$27,390,552	7.82

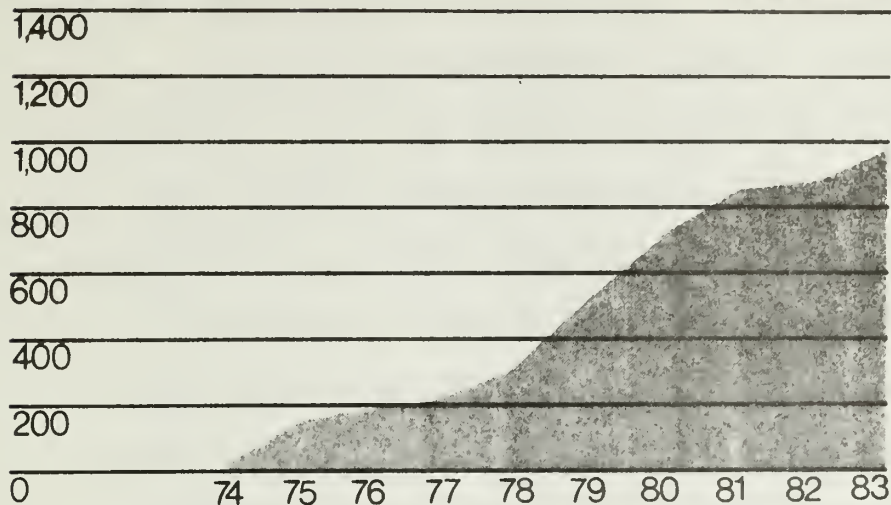
1983 pass program revenue, even with the reduction of price, increased 7.8%, considerably more than the 1.8% increase in total fare revenue. Pass revenue is now almost a third of total passenger revenue, and sales are expected to reach \$30 million in 1984.



## MBTA Pass Program

### Pass Sales

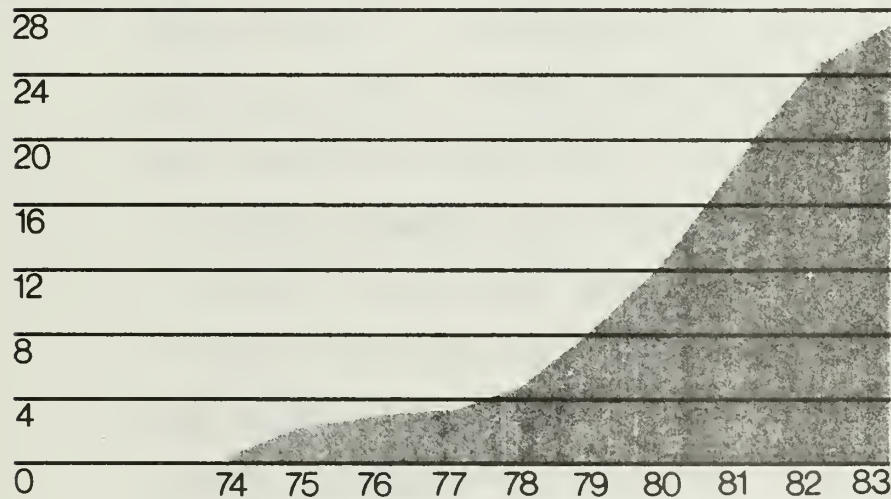
*in thousands*



Pass sales increased 9.4% in 1983.

### Pass Revenue

*in millions of dollars*



Pass revenue increased by 7.8% in 1983.

## PUBLIC SAFETY PROGRAM

The 1983 MBTA Police crime statistics look promising. Part One crimes (felonies - murders, rapes, robberies, assaults, burglaries and larcencies) are down 17% from 1982. Part Two crimes (misdemeanors - vandalism, drunk and disorderly conduct, etc.) are down 10% from 1982. There has been a 25% increase in arrests and overall the perception of safety on the T is improving.

William Bratton began in May, 1983 as Chief of MBTA Police. Also in May, five MBTA cadets entered the Police Academy and are now on the streets. Thirty-four recruits were hired in November, twenty-six of whom were sent to the Police Academy for its three month training program and eight of whom, already Academy trained, were able to join the force right away.

In order to monitor MBTA crime more accurately, a number of initiatives are underway in the Department. A computer upgrade has begun allowing greater storage and more accurate and accessible crime information. Closed circuit cameras are being tested in three locations: Fields Corner, Quincy Adams and Harvard Station. Monitoring of Quincy Adams and Harvard is from the collectors' booths; Fields Corner is monitored from Police Central Control in South Boston. "Safe areas" have been identified in these stations. These areas will be monitored by the closed circuit cameras. Talk-back boxes (security phones which allow direct access to MBTA Police Central Control) are also being tested in these stations.

In addition, new alarm systems which will alert MBTA Police Central Control each time turnstile vaults are opened for the

removal of tokens are being tested at Fields Corner station. If this program proves succesful, it may be expanded to other stations.

In response to the Governor's Anti-Crime Package, introduced in July, efforts are underway to work with communities to improve public safety and improve relations between the T and its consumers. A juvenile officer is implementing a program to present public safety shows at schools and to work with juvenile probation officers and with juvenile court to coordinate crime prevention efforts. A program is also being designed in which T representatives will work with community groups, listening to their concerns and working with them to correct problems.

In an effort to monitor crime accurately and identify trouble spots, the T is contacting local police forces to determine if crimes committed on T property have been reported to local police. In such cases, the T would be unaware of the incident and therefore unable to compile complete statistics. The T is currently working with 15 local police departments and it is their hope that this program can be expanded.

Also as part of the Governor's Anti-Crime Package, the MBTA has begun a training program for Starters and Inspectors. The first session of this three week program was held in September. To date, 154 employees have completed the training; approximately 150 more are awaiting their turn at "school".

The program is divided into two sessions. The first two weeks focus on security training - law, self-defense, patrol techniques, first aid and CPR. The second phase of training concentrates on the transportation-specific duties of the

Starters and Inspectors. These include instruction in flagging procedures, defensive driving techniques, emergency evacuation procedures and passenger relations.

After the succesful completion of the training program, the Starter/Inspector is badged as a commissioned Street Railway Police Officer. With this training the Starter/Inspector is better able to carry out his/her responsibilty to provide safe and reliable service to the riding public. The presence of these additional badged and trained employees in the stations also enhances the overall perception of safety on the MBTA.

Many of the initiatives mentioned above are in their formative stages, and it is too soon to judge their overall impact. The costs of these ventures has been substantial. MBTA Police Department expenditures in 1983 rose 43% from 1982, and the total cost of the Starter and Inspector training program was \$1,232,181, an average of \$4,157 per trainee. As the Authority's public safety programs develop and the new police recruits hit the system, it will be important to monitor not only the success and impact of these ventures on crime, the perception of crime and ridership, but also what the cost of achieving these results is.

The Advisory Board has supported the inclusion of increased resources in the MBTA budget in order to develop a comprehensive public safety program. Crime statistics for 1983 are given on the following page. The statistics show significant improvements for 1983, although it must be noted that major crime statewide dropped 10.3% last year which no doubt accounts for a large part of the MBTA's success in reducing incidents on the T.



# MBTA CRIME STATISTICS

LINE	INCIDENTS 1982	INCIDENTS 1983	% CHANGE
ORANGE	744	559	-24.8%
RED	406	352	-13.3%
BLUE	119	101	-15.0%
GREEN	539	543	+ 0.7%

INCIDENCE OF PART ONE CRIMES	1982	1983	% CHANGE
MURDER	6	1	-83.0%
RAPE	4	5	+25.0%
ROBBERY	664	528	-20.5%
ASSAULT	390	355	-8.4%
BURGLARY	141	106	-24.8%
LARCENY	969	798	-17.6%
MOTOR VEHICLE THEFT	66	78	+18.0%
TOTAL	2,240	1,871	-16.4%

# POLICE DEPARTMENT EXPENDITURES

CATEGORY	1982	1983	VARIANCE \$	VARIANCE %
WAGES	1,849,726	2,553,952	704,226	38.07
MATERIALS	10,380	2,967	(7,413)	(74.09)
SERVICES	107,425	254,112	146,687	136.55
UNIFORMS	32,346	87,148	54,802	169.42
TOTAL	1,999,877	2,898,302	898,302	44.92



## THE RIDE

1983 was a year of expansion for The Ride. Dorchester, Mattapan, Jamaica Plain, Roslindale, Everett, Chelsea, Winthrop, West Roxbury, Hyde Park, Newton, Belmont, Arlington, Watertown, and Malden were added to the list of communities served by the para-transit program which enables handicapped citizens to participate in the same activities as others who have access to transportation. The Advisory Board supported the expansion of this valuable program.

Registrations jumped by 28% in 1983. Service hours, the number of passenger trips, and mileage also increased over the year - by 8%, 12%, and 13% respectively. Data provided by the Authority's Office of Special Needs (OSN) shows improved performance in several areas. Late trips decreased 34%, missed trips, 63%, and trips not available were reduced by 14%.

During the year the cost per trip increased 13% to \$13.18, the cost per hour of service rose 17.4%, and the cost per mile increased 13%. Revenue has not kept pace with increases in passenger trips or increases in the number of registrants. 1983 revenues rose just 8%. 1984 results should improve, as the recently introduced service is more heavily utilized, although better marketing must take place in both established areas and "expansion" neighborhoods if the Ride is to be a cost effective means of transportation for the handicapped.

The Ride still uses the Downtown Distributor, which was first introduced in 1982 to minimize the time individual vans spent snarled in city traffic. The MBTA Office of Special Needs

"THE RIDE" 1983 OPERATIONS SUMMARY

SERVICE HOURS	PSNGR TRIPS	TOTAL MILES	TRIPS /HOUR	TRIPS LATE*	TRIPS MISSED	TRIPS N/A	TRIPS CANC.**
1ST Quarter	12,136	19,998	104,793	1.65	766	16	935
2nd Quarter	13,020	21,648	111,606	1.66	535	15	499
3rd Quarter	13,838	23,698	123,352	1.71	424	6	695
4th Quarter	16,813	26,490	143,171	1.58	351	26	1,210
TOTAL 1983	55,807	91,834	482,922	1.65	2,076	63	3,339
TOTAL 1982	51,738	81,923	425,823	1.58	3,137	170	3,870
% CHANGE	7.86%	12.10%	13.41%	4.15%	(33.82%)	(62.94%)	(13.72%)
							6.84%

\* Within a 20-minute window

\*\* Counted as cancelled only after trip has been scheduled

1981-1983 REVENUE AND COST SUMMARY

OPERATING COSTS	TOTAL REVENUE	NET COST /TRIP*	REV. /TRIP	NET COST /HOUR	REV. /HOUR	NET COST /MILE	REV. /MILE
1983	1,210,408	68,440	12.43	.75	20.46	1.23	2.36
1982	955,360	63,642	10.88	.78	17.24	1.23	2.10
1981	1,007,802	67,523	11.36	.82	17.09	1.23	1.93
							.14
							.15
							.14

\* As of March 1982, transfers are recorded as 2 trips though 1 fare; same journey previously recorded as 1 trip.

is currently evaluating the performance of the distributor.

The response from the handicapped community on the operation and effectiveness of the Ride appears generally positive though there is concern about limited evening and weekend service. A sample of riders who were interviewed expressed enthusiasm about the 1983 expansion. Vans now reach many more people and people in the previously served areas have a greater choice of destinations. Though expressing general satisfaction with the system, these Ride users feel they could help improve service if they had more opportunity for input into decisions about the Ride. They believe that, collectively, they are experts on transporting the handicapped and that The Ride would operate more effectively if the OSN worked closely with handicapped people.

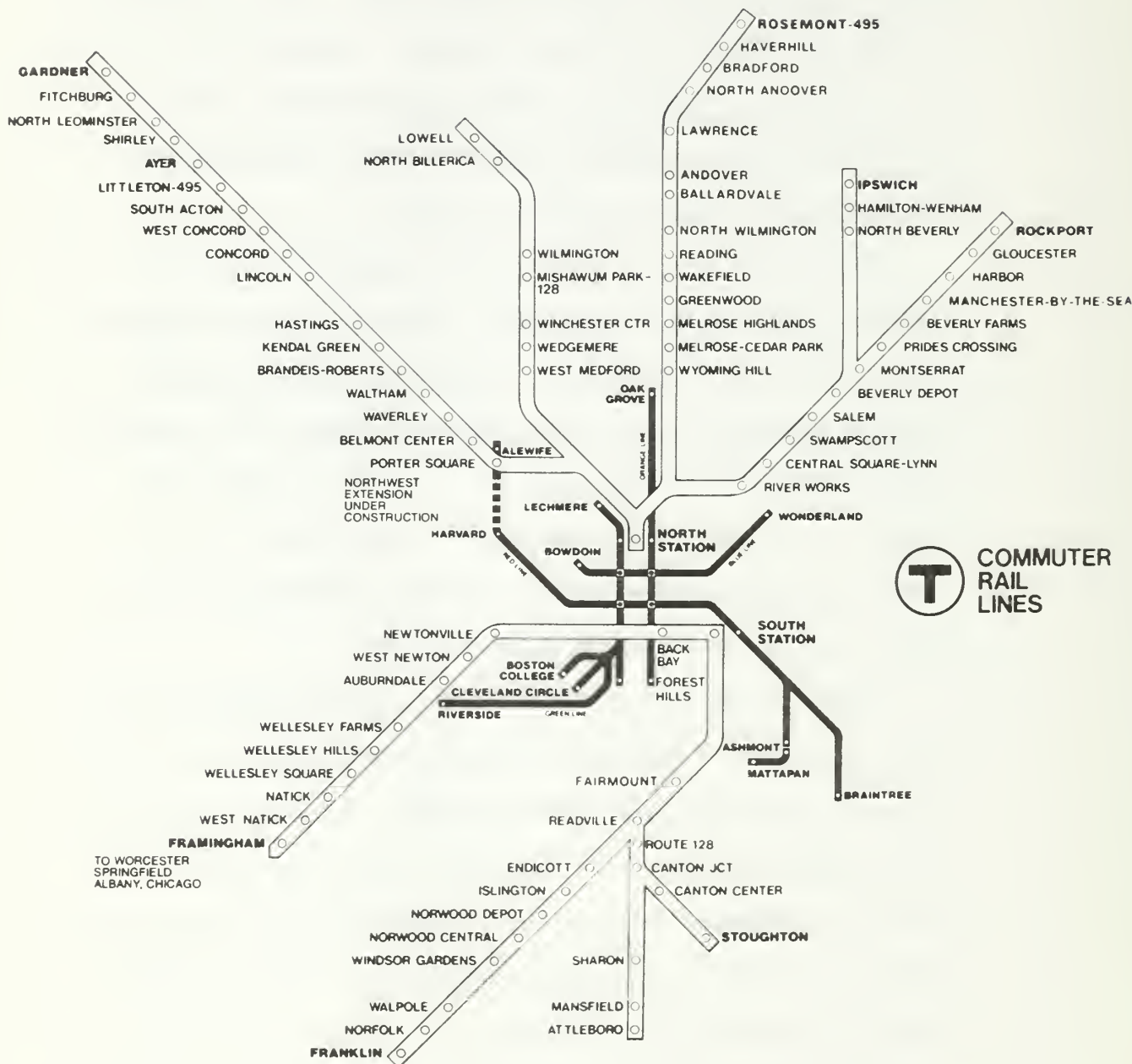
## COMMUTER RAIL

In most areas, 1983 proved to be a banner year for the MBTA's Railroad Operations Directorate (ROD). The T's 250-mile commuter rail network continued to provide reliable train service to passengers in central and eastern Massachusetts. Peak period on-time performance remained above 90%, and average equipment availability was near 100% during the year.

1983 revenue was up 10% over 1982 to nearly \$17 million. Ridership rose nearly 13% in 1983 to a record 11,346,021 passengers. The 1.3 million additional riders were accommodated on existing equipment with no major schedule changes. The resulting crowded conditions prompted the ROD to search for additional coaches. The T was able to purchase a small number of used coaches from the Canadian Pacific Railroad and two used locomotives from the Burlington Northern Railroad.

While the net cost of commuter rail service appears to be under budget for CY 1983, the line item will probably be close to budget for the fiscal year ending 6/30/84. The ROD has exercised more financial control over the Boston & Maine Corporation, operator of commuter rail services, since filling the position of Director of Finance. This change affects the timing of expenditures over the course of the year.

The Advisory Board's report on FY 1984 MBTA performance will contain a major section on commuter rail activities and performance, including impacts of the bridge fire which closed North Station and future plans for this important commuter service.





## CAPITAL PROJECTS

Of all the investments a corporation can make, those for capital improvements are among the most important. MBTA capital funds are directed towards the purchase of new equipment, rail line extensions and improvements, and the rehabilitation of existing plant and rolling stock. The purpose of capital expenditures is to improve some facet of the system's operations, which will, in turn, benefit the MBTA commuter. A summary of 1983 MBTA capital activity follows.

### SUMMARY OF CONTRACTS AND AMMENDMENTS AWARDED

January 1, 1983 - December 31, 1983

Construction Contracts Awarded (31) -	\$121,669,795
Change Orders Authorized -	12,026,153
TOTAL CONSTRUCTION -	<u>\$133,695,948</u>
Professional Service Contracts Awarded -	\$13,131,630
Supplemental Agreements Authorized -	11,776,361
TOTAL PROFESSIONAL SERVICES -	<u>\$24,907,991</u>

To varying degrees, most of the MBTA's capital projects are Federally funded. The MBTA floats general obligation bonds to provide the required local share which varies between 15% and 25%. Section 28 state contract assistance provides reimbursement for approximately 90% of the bond debt service cost.

These costs have been increasing at a rate faster than the total MBTA budget. In the five year period 1979-1983, the MBTA's

actual operating costs before state or federal assistance increased by 22% while the cost of servicing the funded debt increased by 70%.

#### FIXED CHARGES AND OPERATING EXPENSES 1979-1983

	1979	1983	% INCREASE
Total Fixed Charges	\$35,162,329	\$59,674,915	70%
Total Operating Expenses	\$261,974,072	\$319,842,100	22%
Fixed Charges as a % of Total MBTA Budget	12%	16%	

The most costly MBTA capital projects involve the construction of rail line extensions. As of December 1983, the MBTA's two major rapid transit construction projects, the Red Line Northwest and the Orange Line Southwest Corridor were 57% complete in terms of total combined project funds expended. The increase in bond costs should peak as these projects near completion.

The following sections describe some of the more significant capital investments that took place during 1983.

Nearly \$1.4 billion is being expended on two major rapid transit extensions. The Red Line Northwest Extension, scheduled for completion in December 1984 at a cost of \$572 million, takes the Red Line from its present terminus at Harvard an additional 3.2 miles to a new larger facility at the Arlington town line in Alewife Brook Reservation. New stations at Porter Square and Davis Square are substantially completed. Harvard Square and Alewife Stations are more than 80% complete. As of December 1983, the project was 81% complete with 81% of budgeted funds expended.

Welded rail, on innovative sound and vibration-absorbing "floating slabs", is in place as far as Alewife Station.

The \$783 Million Southwest Corridor Project which will relocate the MBTA's Orange Line and MBTA Commuter Rail/Amtrak tracks to a new right-of-way was the scene of much activity during 1983. As of December 1983, 33% of the project was completed with 39% of budgeted funds expended. The project involves the construction of two transit and three railroad tracks between Back Bay and Forest Hills, a distance of almost 5 miles. New Orange Line stations will be built at Chinatown, Back Bay, Massachusetts Ave., Ruggles St./Northeastern University, Roxbury Crossing, Jackson Square, Boylston St./Jamaica Plain, Green St. and Forest Hills. Almost all of the major line construction is complete with station, bridge work and systemwide component installation (tracks, signals, etc.) remaining. The Southwest Corridor will use a direct fixation track system with welded rail directly affixed to the concrete roadbed. This system should result in more stable track geometry requiring less maintenance.

In addition to rail line expansion, the MBTA has a number of plant improvement projects in the works. They can be broken down into seven major areas: 1.) Commuter Rail; 2.) Maintenance Facilities; 3.) Power Improvements; 4.) Rehabilitation of Facilities; 5.) Station Modernization; 6.) Track, Tunnels, & Structures; and, 7.) Vehicle Improvements & Procurements.

The 1983 agenda for the Commuter Rail Improvement Program included signal rehabilitation work along the Eastern Route

Mainline and the Gloucester Branch, the Merrimack Valley Mainline, and the New Hampshire Mainline. The MBTA is rehabilitating track between Attleboro and Hyannis for future passenger service. Station construction at Swampscott and Mishawum (Woburn) were both 50% complete as of December. In addition, the Gloucester Drawbridge rehabilitation project was nearly complete at the end of the year.

MBTA maintenance facilities at Everett and Reservoir were the focal point of construction activity during 1983. Reservoir carhouse and yard was more than 75% complete by December. The Everett bus overhaul facility was completed during the year and the main repair shop at the same location was almost 80% complete.

The MBTA's power improvements are designed to upgrade the substation and cable network to provide a more powerful and reliable power source for the MBTA's electrically-powered transit lines. 26% of the \$358 million needed to complete the power improvements had been expended by the end of 1983.

The Rehabilitation of Facilities Program is aimed at improving MBTA buildings, structures, and equipment. During 1983, this program initiated the rehabilitation of Quincy, Lynn, and Albany Street Garages. Future work is scheduled for Cabot Garage. Also included in this program is the purchase of new tools and non-revenue equipment and improvements to terminal areas. In addition, signal and communications systems on the Blue and Green Lines are scheduled for improvement under this program. Nearly 30% of the \$230 million required for projects currently funded was expended during 1983.



Projects under way in the Station Modernization program include ten Red Line stations. The scope of work at Fields Corner, Savin Hill, and Charles included new lighting, new signs and the lengthening of station platforms to accommodate six-car trains. All of these stations were substantially completed by the end of 1983. South Station will be completely modernized with new wall, floor and ceiling finishes, lengthened platforms and a new underground connection with the South Station Transportation Center (SSTC). The SSTC will combine the services of MBTA Commuter Rail, Amtrak and local and intercity buses in one common intermodal terminal. Engineering work was nearly complete in December 1983. Construction work on both the railroad and Red Line stations will be under way during 1984.

Washington and Park Street will undergo a similar reconstruction program with work scheduled to begin in late 1984. Plans for JFK/UMass include a new platform to serve Braintree passengers and lengthening of the Ashmont line platform to accommodate six-car trains. Cambridge Center/MIT and Central Square Stations will undergo complete reconstruction including new entrance lighting, signs and acoustical treatment. Construction at both stations should commence sometime in 1984.

During 1983, the Track, Tunnels, and Structures program rebuilt Blue Line track between Logan Airport and the terminal at Wonderland. Under a similar program, track on the Central Subway portion of the Green Line will be rebuilt during 1984 and 1985. The tunnel ventilation project began vent shaft construction at Gillette Park on the Red Line and Long Wharf on the Blue



Line. Overall, at the end of 1983, 49% of the Track, Tunnels, and Structures budget had been expended.

There are currently ten projects being undertaken by the \$410 million Vehicle Improvements and Procurements program. 88 "Bluebird" cars are being rehabilitated for the Red Line. The project was more than 60% complete by December 1983. In addition, 76 Silverbird cars will be rebuilt in line with a program used for two cars during 1983. A project to procure an additional 54 Red Line cars was in the final design stage toward the end of 1983.

For the Green Line, 50 new Type 7 Light Rail Vehicles were ordered during 1983. The program to modify the 135 Boeing LRV's now in service continued. Major modifications during 1983 included new door leafs, Ohio Brass couplers and SAAB wheels.

Nearly all of the 70 older MBTA buses contracted for rebuilding to Coach Rebuilders of Springfield were completed by the end of 1983 and are now in passenger service. The rehabilitation program should add between 8 and 12 additional years of service to the buses at a cost substantially less than the cost of procuring new buses.



# MBTA SYSTEMWIDE SERVICE PERFORMANCE

## ANALYSIS OF REVENUE MILES (Source: MBTA Run REV150)

	1982	1983	INCREASE/ (DECREASE) FROM 1982	PERCENT VARIANCE
Scheduled Revenue Miles	37,848,811	39,386,223	1,537,412	4.06%
Actual Revenue Miles Operated	37,067,965	38,658,042	1,590,077	4.29%
+ (-) Scheduled Revenue Miles	( 780,846)	( 728,181)		
Percent Variance	( 2.06%)	( 1.85%)		

## ANALYSIS OF WEEKDAY MISSED TRIPS (Source: MBTA Daily Service Reports)

	1982	1983
Scheduled Weekday Trips	1,943,983	2,122,425
Weekday Trips Missed #	69,498	40,918
%	3.58%	1.93%
Percent Missed Due to:		
-Vehicle Problems	29.44%	31.77%
-Crew-Related Problems	52.48%	28.43%
-Miscellaneous Reasons	18.08%	39.79%

	1982	1983	INCREASE/ (DECREASE) FROM 1982	PERCENT VARIANCE
Direct Transportation Cost	\$67,514,978	\$69,928,222	\$2,413,244	3.57%
-Per Revenue Mile Operated	\$1.82	\$1.81	\$.01	.55%
Direct Vehicle Maintenance Cost	\$33,549,942	\$35,908,344	\$2,358,402	7.03%
-Per Revenue Mile Operated	\$.91	\$.93	\$.02	2.21%

### NOTES

1. Costs reported in areas directly responsible for operating vehicles, almost exclusively wages. Source: MBTA Report RAS 230
2. Costs for wages, materials and services in areas directly responsible for day to day vehicle maintenance. Source: MBTA Report RAS 230.

## MBTA SERVICE PERFORMANCE

Service performance improved during 1983. For the first time since 1976, when the Advisory Board began compiling statistics, the percentage of completed MBTA systemwide trips was higher than the 98% standard set by the Advisory Board. This is a remarkable accomplishment considering that last year was the second-worst since record keeping began. In total, there were 11% more trips operated in 1983 than in 1982. Table I. shows the trend in service delivery.

TABLE I.  
WEEKDAY TRIPS OPERATED BY THE MBTA

	<u>TRIPS SCHEDULED</u>	<u>SCHEDULED TRIPS MISSED</u>	<u>%</u>	<u>SCHEDULED TRIPS RUN</u>
1983	2,122,425	40,918	1.93%	2,081,507
1982	1,943,983	69,498	3.58%	1,874,485
1981	2,016,974	61,652	3.05%	1,955,412
1980	2,140,325	47,307	2.21%	2,093,018
1979	2,093,353	78,379	3.74%	2,014,975
1978	2,083,494	55,055	2.64%	2,028,439
1977	2,205,162	61,444	2.79%	2,143,717
1976	2,054,109	53,166	2.59%	2,000,943

Employee-related missed trips, which accounted for more than 50% of total missed trips in 1982, were only 28% of total missed trips in 1983. Expressed in actual numbers, employee-related missed trips dropped by 66%, from 34,388 in 1982, to 11,634 in 1983 (cf. Table II.). Some of this improvement may be due to changes in categorizing reasons for missed trips; the "miscellaneous" category has increased significantly during 1983.

TABLE II.

## MISSED TRIPS DUE TO EMPLOYEE-RELATED PROBLEMS

	<u>TRIPS MISSED</u>	<u>EMPLOYEE-RELATED MISSED TRIPS</u>	<u>% CHANGE</u>	<u>AS A % OF MISSED TRIPS</u>
1983	40,918	11,634	(66.17%)	28.43%
1982	69,498	34,388	37.88%	49.48%
1981	61,562	24,941	67.37%	40.51%
1980	47,307	14,902	92.04%	31.50%
1979	78,379	7,760	( 5.41%)	9.90%
1978	55,055	8,203	45.11%	14.90%
1977	61,444	5,653	39.91%	9.20%
1976	53,166	4,040	-	7.60%

In July, the MBTA began reporting an additional measure of service performance for rail lines. Called "throughput", it measures delivered capacity within a specific time period. If 10 trains are scheduled from Braintree between 8:00 a.m. and 9:00 a.m. and 9 trains actually operate past a particular point on the line, throughput is 90%. As the applicable time period is lengthened, throughput and percentage of scheduled trips operated become increasingly congruent. Thus, if the 10 trains from Braintree were all that were scheduled for a full day, and 9 were actually operated, throughput would be 90% and the percent of scheduled trips missed would be 10%.

As the time period is shortened, however, throughput also measures schedule adherence. The 10th train scheduled to operate between 8:00 a.m. and 9:00 a.m. in the first example above may actually make its trip, but be late. Reports would indicate that 100% of scheduled trips were operated, but throughput would be only 90%.

The Authority now reports throughput on all rail lines during the three hours of morning and three hours of evening peak



periods. The Advisory Board will include such data in annual reports beginning in FY1984. Operations Director Stead has indicated that he hopes to increase the ability of the Authority to evaluate "schedule adherence". Such data has long been called for by the Advisory Board.

In addition to revenue miles, the MBTA operated 3,245,635 non-revenue miles in 1983, 4,267 more than scheduled. With operating costs so high, it is not only important to schedule as few non-revenue producing miles as possible, but to operate only those non-revenue miles scheduled. In 1982, the MBTA operated 80,000 more non-revenue miles than it had scheduled.

The MBTA made progress in other service-related areas. Both station and on-board announcements are being made on most of the system, particularly announcements about the nature and duration of delays and alternative services available. Communication and coordination between dispatchers and those who staff the PA system should occur not only in the event of service delays, but when any changes in scheduled operation take place, such as the expressing of trains.

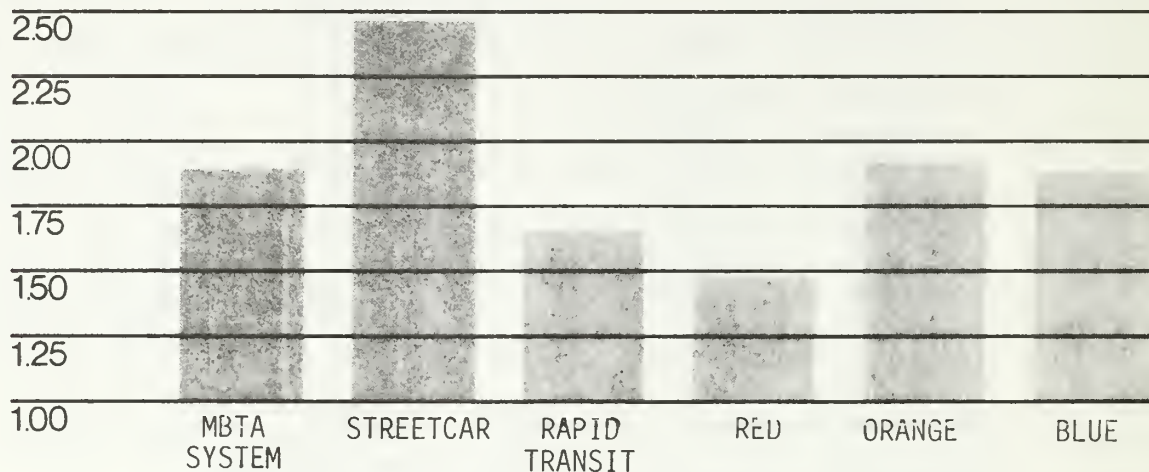
The MBTA began a program to replace all Lexan vehicle glazing with safety glass, affording passengers a clear view. The Authority introduced an accelerated program of station maintenance that includes, where necessary, replacement of lights, stair treads, information signs, and painting. Station cleaning contractors are now instructed to paint over graffiti rather than attempt to erase it. These changes made an appreciable difference in the environment of T riders.

In an effort to reduce the long lines at token booths during

## Direct Transportation Cost per Revenue Mile\*

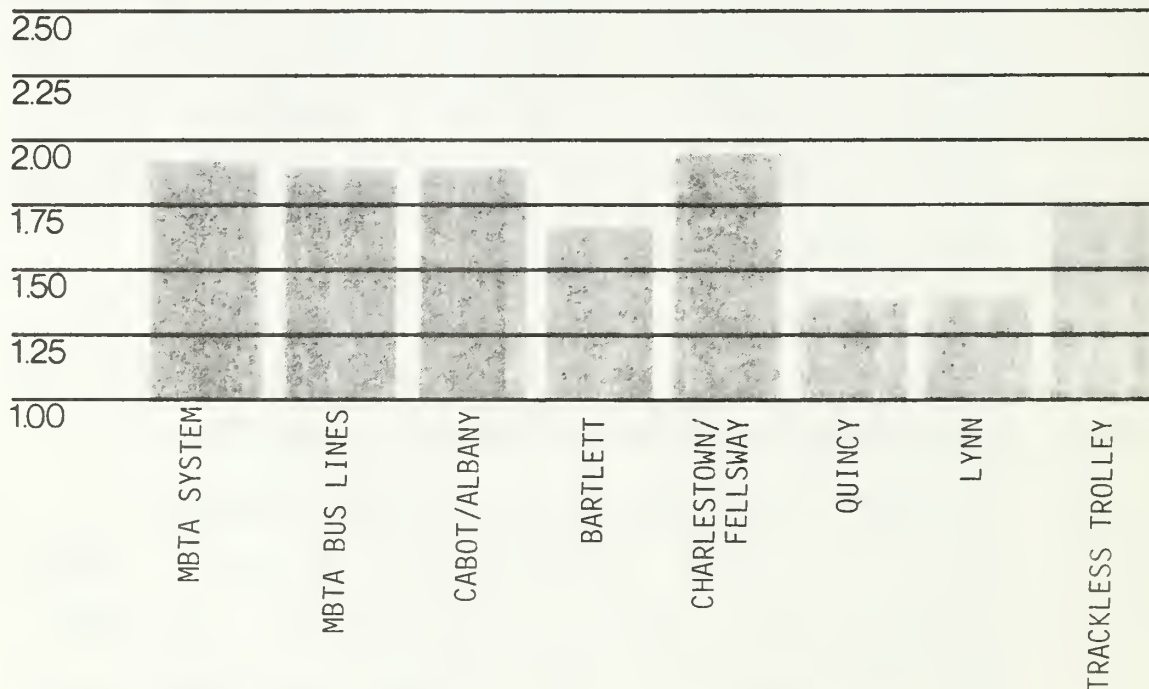
### Rail Lines

in dollars



### Bus Lines

in dollars



\* Costs reported in areas directly responsible for operating vehicles, almost exclusively wages. Source: MBTA Report RAS 230.

rush hours, the MBTA began the sale of token ten-packs. On sale at all token booths and Harvard Coop locations, the ten-packs are convenient for riders who don't travel often enough to warrant a monthly pass.

The following sections will describe MBTA service performance by line, accompanied by detailed tables illustrating the change in performance levels during 1983. A number of new measures are used for the first time in this report.

- REVENUE MILES are service miles operated for passenger service. They do not include pull-outs, pull-backs, or any other non revenue-producing mileage.

- SCHEDULED WEEKDAY TRIPS are expressed in terms of train trips or bus trips rather than car trips as in previous years. Figures for years prior to 1983 are adjusted using conversion factors determined by MBTA, CTPS, and Advisory Board staff.

- DIRECT TRANSPORTATION COST is the cost assigned to each operating area for the provision of transportation. It consists primarily of operators and starters wages. Direct transportation cost does not include administrative, fuel, maintenance or overhead expenses. Direct transportation costs are from the MBTA Responsibility Report.

- DIRECT VEHICLE MAINTENANCE COST is the expense associated with regular maintenance of passenger vehicles. Not included in this figure is the cost of heavy repairs, such as collision damage, which usually take place at the MBTA's Everett Shop. Direct vehicle maintenance costs are from the MBTA Responsibility Report.

# MBTA RAPID TRANSIT SERVICE PERFORMANCE

## ANALYSIS OF REVENUE MILES (Source: MBTA Run REV150)

	1982	1983	INCREASE/ (DECREASE) FROM 1982	PERCENT VARIANCE
Scheduled Revenue Miles	12,562,309	12,913,051	350,742	2.79%
Actual Revenue Miles Operated	12,361,493	12,557,924	196,431	1.59%
+ (-) Scheduled Revenue Miles	( 200,816)	( 355,127)		
Percent Variance	( 1.60%)	( 2.75%)		

## ANALYSIS OF WEEKDAY MISSED TRIPS (Source: MBTA Daily Service Reports)

	1982	1983
Scheduled Weekday Trips	139,176	143,066
Weekday Trips Missed #	7,168	7,798
%	5.15%	5.45%
Percent Missed Due to:		
-Vehicle Problems	31.39%	17.20%
-Crew-Related Problems	39.16%	14.17%
-Miscellaneous Reasons	29.45%	68.62%

	1982	1983	INCREASE/ (DECREASE) FROM 1982	PERCENT VARIANCE
Direct Transportation Cost	\$19,708,067	\$20,777,870	\$1,069,803	5.43%
-Per Revenue Mile Operated	\$1.59	\$1.65	\$.06	3.77%
Direct Vehicle Maintenance Cost	\$5,444,099	\$7,281,522	\$1,837,423	33.75%
-Per Revenue Mile Operated	\$.44	\$.58	\$.14	31.82%



## RAPID TRANSIT LINES SERVICE PERFORMANCE

Rapid transit service performance grew slightly worse in 1983 than it was in 1982. Although revenue miles increased by nearly 200,000, the ability to meet set schedules was affected by construction on the Blue Line and various changes on the Red Line. The MBTA failed to operate 1.6% of scheduled rapid transit revenue miles in 1982 and 2.8% in 1983. Missed trips increased slightly in 1983 to 7,798, or 5.45% of scheduled trips. 69% of those trips missed were reported as being caused by factors other than vehicle or crew-related problems.

The Red Line accounted for 73% of the MBTA's missed rapid transit revenue miles - nearly 260,000. However, there were nearly 2,000 fewer missed Red Line trips in 1983 than in 1982, lowering the percentage of scheduled trips missed from 9% to 5.8%. The MBTA poured new resources into keeping the Red Line fleet in operating condition. A third shift was added at Cabot to do critical car maintenance and to hasten the completion of the in-house 1400-series (so-called Bluebird) car rebuild program. The results are apparent. Vehicle-related missed trips on the Red Line dropped by nearly 1,000. The direct vehicle maintenance cost rose by nearly 50%, however.

The remaining 1400-series cars not included in the in-house rebuild program were contracted to General Electric for complete rebuilding. Contracting out this rebuilding program assures that cars needed on the line will be ready in a shorter period of time. In order to further increase Red Line capacity, the MBTA sought bids for 54 new Red Line cars (the low-bidder was UTDC



# RED LINE SERVICE PERFORMANCE

## ANALYSIS OF REVENUE MILES (Source: MBTA Run REV150)

	1982	1983	INCREASE/ (DECREASE) FROM 1982	PERCENT VARIANCE
Scheduled Revenue Miles	6,675,697	6,844,602	168,905	2.53%
Actual Revenue Miles Operated	6,445,290	6,585,106	139,816	2.17%
+ (-) Scheduled Revenue Miles	( 230,407)	( 259,496)		
Percent Variance	( 3.45%)	( 3.79%)		

## ANALYSIS OF WEEKDAY MISSED TRIPS (Source: MBTA Daily Service Reports)

	1982	1983
Scheduled Weekday Trips	59,861	60,189
Weekday Trips Missed #	5,362	3,471
%	8.96%	5.77%
Percent Missed Due to:		
-Vehicle Problems	39.24%	33.75%
-Crew-Related Problems	30.48%	16.85%
-Miscellaneous Reasons	30.28%	49.39%

	1982	1983	INCREASE/ (DECREASE) FROM 1982	PERCENT VARIANCE
Direct Transportation Cost	\$9,012,177	\$9,829,391	\$817,214	9.07%
-Per Revenue Mile Operated	\$1.40	\$1.49	\$.09	6.43%
Direct Vehicle Maintenance Cost	\$3,259,472	\$4,886,166	\$1,626,694	49.91%
-Per Revenue Mile Operated	\$.51	\$.74	\$.23	45.10%

[USA] of Detroit), which will be used in six-car trains, once station platforms are lengthened. The first cars are expected to be delivered during the first half of 1986.

Red Line operations were radically changed during the second half of 1983. In September, both Harvard/Brattle and Harvard/Holyoke stations were closed and the Church Street entrance of the new Harvard Station was opened. While the main entrance and mezzanine remain to be completed, the opening of Harvard Station marks the completion of the tie-in with the Alewife Extension. Passenger service extends only to Harvard but trains must travel to Davis to reverse direction, a 12-18 minute operation. Teething pains associated with this complicated change initially caused considerable passenger delays. However, by year's end adequate remedial measures were implemented to streamline the turnaround move. Also in September, the MBTA opened Quincy/Adams Station on the Braintree branch of the Red Line.

The Alewife Extension of the Red Line was approximately 80% completed by the end of 1983. Stations at Porter and Davis were virtually complete and the Alewife Station/Garage complex was structurally complete with finish work remaining. Tracks were installed as far as Mass. Ave. in North Cambridge, and concrete for the underground storage yard at the Arlington line was in place. Revenue service to Alewife Station is planned for December 1984 or January 1985.

The MBTA's Orange Line completed nearly 100% of both scheduled revenue miles and weekday train trips. Revenue miles increased by 7% in 1983 to nearly 4,000,000, while direct Orange Line transportation costs rose by 4.5%. Each transportation

# ORANGE LINE SERVICE PERFORMANCE

## ANALYSIS OF REVENUE MILES (Source: MBTA Run REV150)

	1982	1983	INCREASE/ (DECREASE) FROM 1982	PERCENT VARIANCE
Scheduled Revenue Miles	3,636,859	3,924,527	287,668	7.91%
Actual Revenue Miles Operated	3,649,822	3,909,478	259,656	7.11%
+ (-) Scheduled Revenue Miles	12,963	( 15,049)		
Percent Variance	.36%	( .38%)		

## ANALYSIS OF WEEKDAY MISSED TRIPS (Source: MBTA Daily Service Reports)

	1982	1983
Scheduled Weekday Trips	38,421	41,032
Weekday Trips Missed #	960	419
%	2.50%	1.02%
Percent Missed Due to:		
-Vehicle Problems	11.18%	13.73%
-Crew-Related Problems	66.53%	45.75%
-Miscellaneous Reasons	22.29%	40.50%

	1982	1983	INCREASE/ (DECREASE) FROM 1982	PERCENT VARIANCE
Direct Transportation Cost	\$6,929,552	\$7,243,458	\$313,906	4.53%
-Per Revenue Mile Operated	\$1.90	\$1.85	( \$.05)	( 2.63%)
Direct Vehicle Maintenance Cost	\$1,039,479	\$1,181,069	\$141,590	13.62%
-Per Revenue Mile Operated	\$.28	\$.30	\$.02	7.14%

dollar bought 2.6% more service in 1983 than in 1982.

Riders of the MBTA's Blue Line faced an increasing number of service delays during 1983. The Blue Line missed over 9.3% of its scheduled trips during 1983, compared to 2.07% in 1982. Over 80% of these missed trips were in some way related to Blue Line reconstruction which was in full swing for most of the second half of 1983. New ties laid with continuous welded rail were installed between Logan Airport and Wonderland in Revere. While the track and catenary (overhead power wire) improvements allowed a smoother and faster ride, problems were discovered, presumably involving the interface between wheels and track. The seriousness of the problem was evident when a series of derailments occurred requiring the reduction of speeds until guard rails could be installed. Full speed service was resumed by the end of the year. The MBTA has retained a Blue-Ribbon team of experts to study the problem which is also occurring, to a lesser extent, on the Orange Line.

The MBTA's Suffolk Downs station was opened for passenger service after a complete rebuilding effort. The outbound platform at Suffolk Downs was totally gutted by fire in 1974 requiring passengers to use Beachmont Station and reverse direction.

# BLUE LINE SERVICE PERFORMANCE

## ANALYSIS OF REVENUE MILES (Source: MBTA Run REV150)

	1982	1983	INCREASE/ (DECREASE) FROM 1982	PERCENT VARIANCE
Scheduled Revenue Miles	2,249,753	2,143,922	( 105,831)	( 4.70%)
Actual Revenue Miles Operated	2,266,381	2,063,340	( 203,041)	( 8.96%)
+ (-) Scheduled Revenue Miles	16,628	( 80,582)		
Percent Variance	.74%	( 3.76%)		

## ANALYSIS OF WEEKDAY MISSED TRIPS (Source: MBTA Daily Service Reports)

	1982	1983
Scheduled Weekday Trips	40,894	41,845
Weekday Trips Missed #	846	3,909
%	2.07%	9.34%
Percent Missed Due to:		
-Vehicle Problems	4.57%	2.89%
-Crew-Related Problems	63.09%	8.40%
-Miscellaneous Reasons	32.34%	88.70%

	1982	1983	INCREASE/ (DECREASE) FROM 1982	PERCENT VARIANCE
Direct Transportation Cost	\$3,766,338	\$3,705,021	( \$61,317)	( 1.63%)
-Per Revenue Mile Operated	\$1.66	\$1.80	\$.13	8.05%
Direct Vehicle Maintenance Cost	\$1,145,148	\$1,214,287	\$69,139	6.04%
-Per Revenue Mile Operated	\$.51	\$.59	\$.08	16.47%



### STREETCAR LINES SERVICE PERFORMANCE

The MBTA operates streetcar service along four subway/surface routes which comprise the Green Line. In addition, streetcars are operated on a 3 mile route between Ashmont Station on the Red Line and Mattapan. Because the Mattapan/Ashmont line is part of the Arborway Rating Station, service performance data is included with that for the Arborway Line. Since we cannot extrapolate Mattapan/Ashmont service performance data from what we receive, streetcar service performance is reported in aggregate form. Given the physical and service characteristics of the line (i.e. short length, new tracks and roadbed, a small percentage of total streetcar trips), and what is historically known about service performance results on this line, performance data in this section relates more closely to service on the Green Line.

In many respects, streetcar service performance improved during 1983. There were 412,685 more revenue miles operated in 1983 than in 1982, a 9% increase. The percentage of dropped revenue miles remained about the same at 4%. There were 2,000 fewer missed streetcar trips during the year, reducing the percentage of scheduled trips missed from 7% to 4.68%.

The improvement in streetcar service performance is remarkable considering that the Green Line faced some difficult operating conditions during 1983. The Arborway Line continued to be plagued by surface delays caused, in part, by the direct interface with automobile traffic on South Huntington Ave., Centre and South Streets in Jamaica Plain. In fact, after one February snowstorm, the Arborway Line was closed for one week due

# STREETCAR LINES SERVICE PERFORMANCE

## ANALYSIS OF REVENUE MILES (Source: MBTA Run REV150)

	1982	1983	INCREASE/ (DECREASE) FROM 1982	PERCENT VARIANCE
Scheduled Revenue Miles	4,819,836	5,282,143	462,307	9.59%
Actual Revenue Miles Operated	4,657,104	5,069,789	412,685	8.86%
+ (-) Scheduled Revenue Miles	( 162,732)	( 212,354)		
Percent Variance	( 3.38%)	( 4.02%)		

## ANALYSIS OF WEEKDAY MISSED TRIPS (Source: MBTA Daily Service Reports)

	1982	1983
Scheduled Weekday Trips	220,610	290,188
Weekday Trips Missed #	15,318	13,586
%	6.94%	4.68%
Percent Missed Due to:		
-Vehicle Problems	29.81%	21.32%
-Crew-Related Problems	49.83%	17.37%
-Miscellaneous Reasons	20.36%	61.30%

	1982	1983	INCREASE/ (DECREASE) FROM 1982	PERCENT VARIANCE
Direct Transportation Cost	\$11,007,750	\$12,537,214	\$1,529,464	13.89%
-Per Revenue Mile Operated	\$2.36	\$2.47	\$.11	4.66%
Direct Vehicle Maintenance Cost	\$8,422,648	\$8,677,259	\$254,611	3.02%
-Per Revenue Mile Operated	\$1.81	\$1.71	( \$.10)	( 5.52%)

to snow-narrowed streets and parked cars which blocked the path of the streetcars. The MBTA provided some additional service to ease the load. On days when sufficient LRV's are available, they are used on the Arborway Line to supplement the older PCC's between Park Street and either Northeastern or Brigham Circle. Nonetheless, passenger delays along this line were significant during 1983. The Arborway Line remains the only Green Line branch without direct radio contact with Central Control. Despite Advisory Board recommendations that portable radios be assigned to each PCC pilot (the motorman in the first car), Arborway Line trains are still left without direct ties with Central Control. In fact, Arborway Line PCC cars are normally completely unmonitored between Northeastern and Copley and, except for mobile starters, on the remainder of the line as well.

The Arborway Line was replaced with buses for a six week period in October and November to allow Orange Line construction to continue in the Forest Hills area.

During Summer 1983, LRV's operating with older wheelsets were restricted to a maximum speed of 25 MPH after it was determined that, at normal speed, the wheel rims had a tendency to become detached from their tires. Although no major mishaps occurred, a number of minor derailments were attributed to the wheel problem. Until the entire LRV fleet could be fitted with a temporary "fix" or new, safer wheelsets, service delays were a troublesome, daily affair. The Riverside line, with its higher average speeds, was most affected by the reduced speeds. By September, virtually all LRV's had received the in-house designed

# MBTA BUS & TRACKLESS TROLLEY LINES SERVICE PERFORMANCE

## ANALYSIS OF REVENUE MILES (Source: MBTA Run REV150)

	1982	1983	INCREASE/ (DECREASE) FROM 1982	PERCENT VARIANCE
Scheduled Revenue Miles	20,466,666	21,191,029	724,363	3.54%
Actual Revenue Miles Operated	20,049,368	20,030,329	( 19,039)	( .09%)
+ (-) Scheduled Revenue Miles	( 417,298)	( 1,160,700)		
Percent Variance	( 2.04%)	( 5.48%)		

## ANALYSIS OF WEEKDAY MISSED TRIPS (Source: MBTA Daily Service Reports)

	1982	1983
Scheduled Weekday Trips	1,669,071	1,689,171
Weekday Trips Missed #	42,439	19,425
%	2.54%	1.15%
Percent Missed Due to:		
-Vehicle Problems	28.98%	44.86%
-Crew-Related Problems	55.69%	41.81%
-Miscellaneous Reasons	15.33%	13.32%

	1982	1983	INCREASE/ (DECREASE) FROM 1982	PERCENT VARIANCE
Direct Transportation Cost	\$36,799,161	\$36,613,138	( \$186,023)	( .51%)
-Per Revenue Mile Operated	\$1.84	\$1.83	( \$.01)	( .54%)
Direct Vehicle Maintenance Cost	\$19,683,195	\$19,949,563	\$266,368	1.35%
-Per Revenue Mile Operated	\$.98	\$1.00	\$.02	2.04%



"fix" and speed restrictions were lifted. LRV performance should improve when all of the cars are equipped with new couplers, doors, and propulsion gears (dogbones).

In September 1983, the MBTA entered into a contract with the Japanese joint venture Kinki Sharyo/C. Itoh for the construction of 50 Type 7 Light Rail Cars at a total cost (including spare parts) of \$52,293,803. These new LRV's are the result of five years of planning and engineering and are designed to be free from all of the shortcomings which have plagued the Boeing LRV's. Thus, the new Type 7's represent the first major prospect for improvement of Green Line service in many years. The first new LRV should be in service by October 1985.

Direct streetcar maintenance costs per revenue mile dropped by more than 5% in 1983. Nevertheless, streetcars remain the most costly mode in terms of both Transportation and Maintenance costs per revenue mile. In fact, streetcar maintenance costs per revenue mile are nearly double the MBTA average. The new Reservoir Maintenance Facility was nearly complete at the end of the year. Hopefully the efficiency of a new building and yard in a strategic location will have a positive effect on streetcar maintenance and transportation costs.



# CABOT/ALBANY STREET GARAGES SERVICE PERFORMANCE

## ANALYSIS OF REVENUE MILES (Source: MBTA Run REV150)

	1982	1983	INCREASE/ (DECREASE) FROM 1982	PERCENT VARIANCE
Scheduled Revenue Miles	5,684,155	5,882,988	198,833	3.50%
Actual Revenue Miles Operated	5,589,729	5,834,801	245,072	4.38%
+ (-) Scheduled Revenue Miles	( 94,426)	( 48,187)		
Percent Variance	( 1.66%)	( .82%)		

## ANALYSIS OF WEEKDAY MISSED TRIPS (Source: MBTA Daily Service Reports)

	1982	1983
Scheduled Weekday Trips	485,741	498,177
Weekday Trips Missed #	13,254	8,471
%	2.73%	1.70%
Percent Missed Due to:		
-Vehicle Problems	35.26%	56.69%
-Crew-Related Problems	64.03%	40.02%
-Miscellaneous Reasons	.71%	3.29%

	1982	1983	INCREASE/ (DECREASE) FROM 1982	PERCENT VARIANCE
Direct Transportation Cost	\$10,890,924	\$10,861,797	( \$29,127)	( .27%)
-Per Revenue Mile Operated	\$1.95	\$1.86	( \$.09)	( 4.62%)
Direct Vehicle Maintenance Cost	\$6,124,924	\$6,013,160	( \$111,764)	( 1.82%)
-Per Revenue Mile Operated	\$1.10	\$1.03	( \$.07)	( 6.36%)

## BUS AND TRACKLESS TROLLEY LINES SERVICE PERFORMANCE

Service performance on the MBTA's more than 150 bus and trackless trolley lines improved in some areas and deteriorated in others. Overall, the MBTA missed over 1.1 million bus and trackless trolley revenue miles, up more than 600,000 from 1982. The percentage of scheduled revenue miles not run increased from 2% in 1982 to 5.5% in 1983. Missed weekday bus trips decreased, however, from 2.54% to 1.15%. While the two measures seem to tell conflicting stories about MBTA bus service, missed trip data is for weekdays only, exclusive of holidays. Revenue miles are recorded daily. One of three conclusions can be drawn: Either 1.) a very high incidence of missed trips took place on weekends; 2.) a majority of missed trips affected longer routes, or 3.) the data is inaccurate.

The direct transportation cost and the cost per revenue mile went down slightly in 1983 at roughly the same rate. Vehicle maintenance costs rose slightly as did the bus maintenance cost per revenue mile. Had the MBTA operated all of its scheduled revenue miles, the maintenance cost per revenue mile may well have gone down.

Cabot and Albany Street Garages together handle almost half of all bus service in Greater Boston. Albany Street houses all buses used on Turnpike express service and on local routes in Newton, Waltham, Watertown, and Needham. Cabot maintains buses used on heavily patronized urban bus routes in South Boston, Dorchester, Upper Roxbury and the route to Harvard Square from Dudley.

# BARTLETT GARAGE SERVICE PERFORMANCE

## ANALYSIS OF REVENUE MILES (Source: MBTA Run REV150)

	1982	1983	INCREASE/ (DECREASE) FROM 1982	PERCENT VARIANCE
Scheduled Revenue Miles	3,312,307	3,119,771	( 192,536)	( 5.81%)
Actual Revenue Miles Operated	3,114,600	3,071,443	( 43,157)	( 1.39%)
+ (-) Scheduled Revenue Miles	( 197,707)	( 48,328)		
Percent Variance	( 5.97%)	( 1.55%)		

## ANALYSIS OF WEEKDAY MISSED TRIPS (Source: MBTA Daily Service Reports)

	1982	1983
Scheduled Weekday Trips	302,295	281,902
Weekday Trips Missed #	12,087	4,409
%	4.00%	1.56%
Percent Missed Due to:		
-Vehicle Problems	27.51%	30.92%
-Crew-Related Problems	47.59%	37.68%
-Miscellaneous Reasons	24.90%	31.38%

	1982	1983	INCREASE/ (DECREASE) FROM 1982	PERCENT VARIANCE
Direct Transportation Cost	\$5,907,038	\$5,253,335	( \$653,703)	(11.07%)
-Per Revenue Mile Operated	\$1.90	\$1.71	( \$.19)	(10.00%)
Direct Vehicle Maintenance Cost	\$3,240,910	\$3,227,431	( \$13,479)	(.42%)
-Per Revenue Mile Operated	\$1.04	\$1.05	\$.01	.96%

Service performance results for these two garages indicate that service improved in all reporting areas. 250,000 more revenue miles were operated in 1983. Fewer than 1% were missed, compared to nearly 2% in 1982. Missed trips dropped from over 13,000 in 1982 to just under 8,500 in 1983. Moreover, Cabot and Albany Street results fall within the Advisory Board 2% standard for missed trips. Direct operating and maintenance costs both dropped in 1983. The bus maintenance cost per revenue mile dropped by more than 6%.

The Massachusetts Avenue Bridge across the Charles River was closed to bus and truck traffic during the Summer, forcing a rerouting of Route 1, the MBTA's busiest bus route, between Harvard and Dudley. Because this change took place in the middle of a timetable period, the MBTA incurred a significant overtime expense caused by adding buses to supplement regular schedules and by traffic delays causing late pull-backs. Route 1 buses were routed through Kenmore Square and over the BU Bridge.

Bartlett Garage serves buses in the Roxbury, Hyde Park, Roslindale, Jamaica Plain, and West Roxbury sections of Boston. There were 43,000 fewer revenue miles operated from Bartlett Garage in 1983 than in 1982. The variance from scheduled revenue miles fell from 6% in 1982 to 1.6% in 1983. The percentage of scheduled trips missed in 1983 was also 1.6%, down from 4% in 1982. The actual number of missed trips fell dramatically, from over 12,000 in 1982 to under 4,500 in 1983. Direct transportation costs were reduced by over 11% while the transportation cost per revenue mile fell by nearly 10%.

# CHARLESTOWN/FELLSWAY GARAGES SERVICE PERFORMANCE

## ANALYSIS OF REVENUE MILES (Source: MBTA Run REV150)

	1982	1983	INCREASE/ (DECREASE) FROM 1982	PERCENT VARIANCE
Scheduled Revenue Miles	6,319,080	6,621,946	302,866	4.79%
Actual Revenue Miles Operated	6,262,529	6,594,863	332,334	5.31%
+ (-) Scheduled Revenue Miles	( 56,551)	( 27,083)		
Percent Variance	( .89%)	( .41%)		

## ANALYSIS OF WEEKDAY MISSED TRIPS (Source: MBTA Daily Service Reports)

	1982	1983
Scheduled Weekday Trips	502,338	523,453
Weekday Trips Missed #	9,380	4,134
%	1.87%	.79%
Percent Missed Due to:		
-Vehicle Problems	27.44%	46.23%
-Crew-Related Problems	54.80%	38.28%
-Miscellaneous Reasons	17.76%	15.48%

	1982	1983	INCREASE/ (DECREASE) FROM 1982	PERCENT VARIANCE
Direct Transportation Cost	\$12,529,275	\$12,604,013	\$74,738	.60%
-Per Revenue Mile Operated	\$2.00	\$1.91	( \$.09)	( 4.50%)
Direct Vehicle Maintenance Cost	\$6,234,794	\$6,269,211	\$34,417	.55%
-Per Revenue Mile Operated	\$1.00	\$.95	( \$.05)	( 5.00%)



Bus service from Charlestown and Fellsway Garages serves a wide area of Greater Boston stretching from the North Shore to Belmont and Waltham. Service includes both heavily travelled local routes and all of the I-93 express bus service. Service performance at these two locations during 1983 improved from already satisfactory levels in 1982. Virtually all scheduled revenue miles were operated. Fewer than 1% of scheduled weekday bus trips were missed during the year. In addition, while both direct transportation and vehicle maintenance costs increased slightly during 1983, both transportation and maintenance costs per revenue mile fell by nearly 5%.

Quincy Garage houses bus routes serving the South Shore and as far south as the Brockton city line. Most routes are fairly high-mileage services with wide headways. Certain routes in Quincy are very heavily patronized urban routes.

More than 5% additional revenue miles were operated in 1983 from Quincy Garage. The percentage of scheduled revenue miles not operated fell from 1.6% in 1982 to under 1% in 1983. The percentage of scheduled weekday bus trips not run posted the same results, falling from 2.8% to 0.7%. As at Charlestown and Fellsway Garages, both direct transportation and vehicle maintenance costs rose slightly in 1983, but transportation and maintenance costs per revenue mile fell by more than 2%.

Lynn Garage bus routes provide service in an operating environment equally diverse as that at Quincy Garage. Despite the predominance of high-mileage routes, vehicle maintenance costs per revenue mile at Lynn Garage are 25% less than the average for MBTA bus garages. Adherence to scheduled revenue

# QUINCY GARAGE SERVICE PERFORMANCE

## ANALYSIS OF REVENUE MILES (Source: MBTA Run REV150)

	1982	1983	INCREASE/ (DECREASE) FROM 1982	PERCENT VARIANCE
Scheduled Revenue Miles	2,091,844	2,187,745	95,901	4.58%
Actual Revenue Miles Operated	2,057,541	2,168,092	110,551	5.37%
+ (-) Scheduled Revenue Miles	( 34,303)	( 19,653)		
Percent Variance	( 1.64%)	( .90%)		

## ANALYSIS OF WEEKDAY MISSED TRIPS (Source: MBTA Daily Service Reports)

	1982	1983
Scheduled Weekday Trips	149,321	149,591
Weekday Trips Missed #	4,169	1,106
%	2.79%	.74%
Percent Missed Due to:		
-Vehicle Problems	15.01%	27.98%
-Crew-Related Problems	50.73%	65.64%
-Miscellaneous Reasons	34.26%	6.37%

	1982	1983	INCREASE/ (DECREASE) FROM 1982	PERCENT VARIANCE
Direct Transportation Cost	\$2,953,721	\$3,027,153	\$73,432	2.49%
-Per Revenue Mile Operated	\$1.44	\$1.40	( \$.04)	( 2.78%)
Direct Vehicle Maintenance Cost	\$1,738,888	\$1,792,695	\$53,807	3.09%
-Per Revenue Mile Operated	\$.85	\$.83	( \$.02)	( 2.35%)

miles and scheduled weekday trips improved in 1983. Lynn Garage missed less than 1% of both scheduled revenue miles and weekday trips. Bus maintenance costs increased by more than 10% in 1983, but each maintenance dollar expended bought MBTA North Shore passengers almost 6% more revenue miles.

The MBTA operates a somewhat hybrid transit system of four routes in Cambridge, Belmont, and Watertown, using a type of vehicle called the trackless trolley. As the name implies, trackless trolleys are electric buses on rubber tires that draw current through two trolley poles from overhead wires. The MBTA's trackless trolley lines have historically been among the most reliable of all MBTA lines. For instance, all scheduled trackless trolley revenue miles were operated in 1983. Route 71 trackless trolleys, operating between Harvard/Brattle and Watertown Square were reinstated during 1983 after having been replaced by buses for most of 1982 due to MDPW work along Mount Auburn Street. The 58% increase in revenue miles reflects this change. The increase in revenue miles also increased the efficiency of trackless trolley operations. While direct transportation and vehicle maintenance costs rose 37% and 22% respectively, per revenue mile costs fell by 13% and 23% respectively.

# LYNN GARAGE SERVICE PERFORMANCE

## ANALYSIS OF REVENUE MILES (Source: MBTA Run REV150)

	1982	1983	INCREASE/ (DECREASE) FROM 1982	PERCENT VARIANCE
Scheduled Revenue Miles	2,694,506	2,807,257	112,751	4.18%
Actual Revenue Miles Operated	2,664,222	2,789,808	125,586	4.71%
+ (-) Scheduled Revenue Miles	( 30,284)	( 17,449)		
Percent Variance	( 1.12%)	( .62%)		

## ANALYSIS OF WEEKDAY MISSED TRIPS (Source: MBTA Daily Service Reports)

	1982	1983
Scheduled Weekday Trips	165,061	161,459
Weekday Trips Missed #	2,570	901
%	1.56%	.56%
Percent Missed Due to:		
-Vehicle Problems	35.52%	64.59%
-Crew-Related Problems	57.28%	30.74%
-Miscellaneous Reasons	7.20%	4.66%

	1982	1983	INCREASE/ (DECREASE) FROM 1982	PERCENT VARIANCE
Direct Transportation Cost	\$3,789,881	\$3,866,532	\$76,651	2.02%
-Per Revenue Mile Operated	\$1.42	\$1.39	( \$.03)	( 2.11%)
Direct Vehicle Maintenance Cost	\$1,840,179	\$2,034,431	\$194,252	10.56%
-Per Revenue Mile Operated	\$.69	\$.73	\$.04	5.80%

# TRACKLESS TROLLEY SERVICE PERFORMANCE

## ANALYSIS OF REVENUE MILES (Source: MBTA Run REV150)

	1982	1983	INCREASE/ (DECREASE) FROM 1982	PERCENT VARIANCE
Scheduled Revenue Miles	364,774	571,322	206,548	56.62%
Actual Revenue Miles Operated	360,747	571,322	210,575	58.37%
+ (-) Scheduled Revenue Miles	( 4,027)	0		
Percent Variance	( 1.10%)	.00%		

## ANALYSIS OF WEEKDAY MISSED TRIPS (Source: MBTA Daily Service Reports)

	1982	1983
Scheduled Weekday Trips	64,315	74,565
Weekday Trips Missed #	980	515
%	1.52%	.69%
Percent Missed Due to:		
-Vehicle Problems	19.26%	36.24%
-Crew-Related Problems	68.04%	38.96%
-Miscellaneous Reasons	12.70%	24.78%

	1982	1983	INCREASE/ (DECREASE) FROM 1982	PERCENT VARIANCE
Direct Transportation Cost	\$728,322	\$1,000,308	\$271,986	37.34%
-Per Revenue Mile Operated	\$2.02	\$1.75	( \$.27)	(13.37%)
Direct Vehicle Maintenance Cost	\$503,500	\$612,635	\$109,135	21.68%
-Per Revenue Mile Operated	\$1.40	\$1.07	( \$.33)	(23.57%)









# **MBTA PERFORMANCE**

## **MBTA ADVISORY BOARD STAFF REPORT**

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# **1984**





ANALYSIS OF MBTA BUDGET AND  
SERVICE PERFORMANCE FOR 1984

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## EXECUTIVE SUMMARY

The MBTA's Advisory Board Report on 1984 MBTA Performance finds the T stronger at the end of 1984 than in the beginning of the year. The Authority's ability to handle crises and deal with the media and outside constituencies is applauded, but its internal strength is called into question. Attention needs to focus on the exercise of leadership within the agency, completion of a management team, strengthening of interdepartmental communication and development of an "identity" at the T.

Other findings of the Report are:

- Net cost per revenue mile rose 10.3% in 1984 while the Boston Consumer Price Index rose but 4.9%. Expenses rose much faster than income.

- Absenteeism declined 2.8% but is still 42% above the per employee level of 1980. That 42% difference cost the T and taxpayers an estimated \$6.6 million in 1984.

- Time lost to industrial accidents declined 11.2% and saved the Authority an estimated \$1 million.

- Over 160 T employees earned more than \$10,000 in overtime pay in 1984. Some of them worked an average 70 to 80 hours per week for an entire quarter raising concerns of health and safety.

- With a genuine commitment from the Board of Directors and the General Manager significant strides were made in the employment of females and minorities.

- The MBTA completed 98.6% of scheduled trips in 1984, the highest rate since the Advisory Board started to collect data in 1976.

- The Red Line continued to perform well below the level of the other rapid transit lines. Though it accounts for 41% of scheduled trips, the Red Line is responsible for 73% of all missed trips. Vehicle problems are the primary reason that line operated only 92% of rush hour throughput.

- The Green Line though somewhat improved is still plagued by overcrowding, random destination sequencing of cars in the central subway and unreliable air conditioning.

- The T continues to be one of the few major transit systems that does not monitor on-time reliability.

- Commuter Rail survived two major fires and the rebuilding of the Southeast Expressway but was hampered by a shortage of vehicles and questionable vehicle maintenance from the B & M. The Advisory Board has not been able to obtain evidence to verify adequate monitoring of B & M expenses by the ROD.



## OVERVIEW

Some at the MBTA are happy just to have survived 1984, a year which brought two major commuter rail bridge fires, the arrest for theft of thirty-four employees responsible for counting fare revenue, a host of operating problems on the Red and Green Lines, the reconstruction of the Southeast Expressway, numerous power outages and hundreds of smaller shocks, emergencies and controversies. Despite these adversities, however, the MBTA emerged from 1984, not only intact, but somewhat stronger than it was when the year began.

As the MBTA has emerged from years of neglect, deferred maintenance and costly decision making and as it has begun to demonstrate genuine concern for those it is designed to serve, the Advisory Board has supported MBTA decisions that promise to bring long run benefits to the system. Part of this support has taken the form of increased funding for maintenance and training and part of the support has been recognition of actions which have brought improvement and/or demonstrated accountability.

The MBTA has received substantial increases in operating budgets in the past two years. The rate of growth has been more than the inflation rate (approximately 5% in the Boston area in 1984) and considerably higher than budgets at the local level. During the calendar year 1984, T expenditures were nearly 11% higher than in 1983 and 1983 expenditures were 6.2% higher than 1982. The table on the following page shows expenditure growth by six month intervals from 1983 through 1984. From the second half of 1983 to the same period in 1984, MBTA-delivered service





TABLE I

## MBTA EXPENDITURES - 6 MONTH PERIODS ENDING:

	6/30/83 181 days	12/31/83 184 days	6/30/84 182 days	12/31/84 184 days
MBTA Delivered Service				
Wages	71,921,905	73,947,283	78,965,387	83,208,569
Benefits & Credits	26,439,816	25,146,177	27,391,451	27,934,456
Materials & Services	19,053,179	17,927,913	22,232,235	17,255,996
Fuel	10,475,712	10,113,354	12,764,286	11,052,705
Other	3,070,473	2,165,750	3,553,806	5,010,538
Totals	130,961,085	129,300,477	144,907,165	144,462,264
Contracted Service				
Commuter Rail	22,418,510	20,807,902	25,267,070	23,885,530
Other	920,535	1,021,980	1,151,500	1,255,814
Totals	23,339,045	21,829,882	26,418,570	25,141,344
Debt Service				
Short Term	8,294,245	6,117,366	6,694,182	8,364,773
Bonds	27,825,101	31,849,814	31,936,498	33,592,120
Totals	36,119,346	37,967,180	38,630,680	41,956,893
Total Expenses	190,419,476	189,097,539	209,956,415	211,560,501
Revenue Miles*		38,658,042		40,040,569
Cost/Rev. Mi.#				
Total		6.73		7.23
Wage		3.77		4.05
Total Labor Costs		5.11		5.43
Materials & Services		.96		.99
Fare Coverage Ratio	36.0	37.0	34.3	35.6

\*Revenue miles and ratios below apply only to MBTA Delivered Service.

Figures are for full year.

#Figures reflect full year costs.



rose 11.7%, contracted services rose 15.2% and debt costs increased 10.5%.

The MBTA Advisory Board has supported such increases in expenditures for four major reasons:

1. a widely shared perception that previous mismanagement led to a deterioration in physical assets necessitating both catch-up maintenance and new resources to safeguard current and future capital investments;
2. faith that the Authority would be better managed because of management rights legislation and public commitments by elected officials, particularly the governor;
3. a recognition of the economic and social importance of good public transit services; and
4. the health of a state and regional economy able to support additional investment in the system.

The Advisory Board's support is crucial for the T. Not only do members of the Board have statutory authority to determine the level of annual operating budgets, but the Board also mirrors the level of public support for the system. At times such support has been a scarce resource.

Public support for the MBTA is generally greater than it was before 1984. The public image of the T is that it is better and safer. The image is supported by evidence and is the result of investment by the public and by MBTA employees in the system.

The improved image has come in part from the experience of daily riders who have seen bus and train performance improve (cf. p.92) and in part from the T's efforts to increase the flow



of information to the public. Through press releases, distribution of flyers and newsletters, more frequent service announcements within stations and on trains and the availability of the General Manager to radio, TV and public gatherings, the public has learned more about the T. An informed public and an informed ridership are generally a more supportive public and a more supportive ridership. The T has turned in the right direction and the public has responded. But there is still a good distance to go to sustain that support. Attention to on time performance and continued improvement in signage, distribution of written material and improved telephone and public address communication are critical.

Beyond the image of improvement, a number of concrete advances (large and small) have taken place. The first of a series of studies on bus routes in various geographical corridors was completed (including public hearings). Changes which enhance efficient delivery of service will be implemented in each area following the acceptance of the recommendations by the Board of Directors. It had been years since some of these routes were examined for historical anomalies. Also in 1984 a long overdue, comprehensive plan to update and enlarge the fleet of buses and rail cars was completed and orders for new vehicles and rebuilds of older vehicles were initiated.

Even though the position of Treasurer/Controller was vacant for seven months of the year, new programs for tax exempt commercial paper and variable rate bonds were implemented, as were the first stages of developing a long range plan for capital funds. The FY 1986 budget which was developed during 1984 showed a serious





attempt by the T to bring planning, analysis and control to the budget process. Considerably more work needs to be done on refining the process, but a foundation was laid in 1984. The Budget Office also improved by having the approved budget reallocated to the departments before two-thirds of the year had passed as was the case in 1983.

Aggressive and seemingly thorough action was taken to implement an affirmative action plan at the T. The results show just what can be done when the Board of Directors and management both get firmly behind an issue. For the most part labor relations were quite harmonious, a major contrast to previous years. Management salaries which had long been on the low side received a welcome boost in '84 to bring them more in line with comparable public sector positions.

Though much that occurred in 1984 was positive, a number of problems persisted. One of the most difficult problems to grab hold of let alone deal with is that of productivity. Information compiled by the U.S. Department of Transportation on transit authorities (Section 15 data) suggests that the T's costs are comparatively high for reasons that may be related to productivity. Analysis of 1983 data (the latest available) shows that relatively low miles per employee, bus hours per operator, rail vehicle miles per employee and a relatively high number of employees per rail vehicle are measures highly correlated with the T's comparatively high cost per vehicle mile. Such statistics, however, do not explain the reasons behind the differences among transit systems, nor do they show the degree to which absenteeism



as opposed to scheduling practices or routing decisions or factors in the external environment influence the difference. But such statistics do raise many questions about the T. The T's own figures on absenteeism show that while it has improved in the last year, it is still far behind the per employee levels of 1980, a fact which costs the T and ultimately the public millions of dollars each year.

Not unconnected with apparently low productivity levels are the reports the Advisory Board received throughout the year of low employee morale. There is a sense that the key issues to workers at the T are ones of style and climate rather than salary and work rules. In fact union wages remain quite high as was duly documented in the Advisory Board's Comparative Study of Wages and Fringe Benefits, October 1984.

Training, manpower planning and internal communications all were areas in need of attention at the T in 1984. From dealing with the disabled to dealing with breakdowns, from knowing how to utilize crowd control techniques to politeness with public enquires, from repairing trains and buses to publicizing the pass program, a deficiency in training people in performance of their jobs comes through. Often employees display the best of intentions but a lack of knowledge of just what to do is clear. The difference between an adequate system and a superior system is often in the thoroughness with which personnel are trained and retrained.

The seemingly erratic patterns of manpower levels in departments coupled with the increasing use of overtime leave the distinct impression that manpower decisions are not planned and





thought out, but rather are the result of ad hoc decisions at the MBTA. To have good transit service and maintenance, managers must be able to plan programs and manpower needs well in advance. Plans must be supported by budgets and the budgets, once approved, must be implemented, including the hiring of budgeted personnel.

Too many people at the T are uninformed about what is going on elsewhere in the agency. While the Authority, like any large agency, is often ripe with rumors, hard and fast knowledge of other department's actions and concerns is not easily available. Nor is information that would enhance another person's or department's work easily shared. This communication problem appears to stem in part from the larger identity problem described below.

The most pervasive and elusive problem at the MBTA is the lack of ethos or agency identity. The T appears as a loose collection of departments and areas each of which is isolated from the others. There is no common spirit or pride or focus uniting the parts into a whole. By the end of 1984 there was not yet a sense of a full team of managers in place who enjoyed the confidence of the General Manager to the degree that would enhance the chances of such a climate developing. Pockets of suspicion, defensiveness and turf control persist, though it is admittedly a great improvement over three to five years ago.

Crisis management and the management of outside constituencies (the public, the politicians, the media) have been of a high caliber at the T in the past year. Most of the credit for that goes to General Manager O'Leary. On the other hand he



also must take responsibility for the internal management weaknesses. It is his responsibility to articulate a vision and goals for the future. It is his style and leadership which will or will not foster a positive climate and good feeling among workers at the T. It is his ability to make wise personnel choices and take risks that can enable the T to move past the bottleneck of centralized decision making to an organization that empowers managers to act and holds them responsible for good decisions. There is still much work to be done.

Many officials and business people are concerned about the future growth of Massachusetts tax revenue. Should predictions of a slower rate of revenue growth prove true, the T will come under increasing pressure to do more with less. Cost cutting will demand greater productivity and new efficiencies. It will require an effective, cohesive management team able to set priorities and work efficiently within severe constraints. Increased cost for new rail service (Red Line extension, Southwest Corridor Project), a possible cutback in federal operating assistance, the failure of policy makers to address the issue of small, frequent fare increases and the Proposition 2 1/2 limit on the growth of the local (city and town property tax) share of the deficit are potentially explosive issues which the best public relations won't defuse. Avoiding a damaging fiscal crisis is of major concern to the public and to the elected and appointed officials who represent them.

Given likely circumstances, the T not only can survive but it can improve with present personnel and present management



practices. But to meet the challenge of becoming more than an adequate system or to be prepared to face the toughest of future circumstances, top management must address the internal issues which will allow the T to work with greater efficiency and effectiveness and become an organization where all the employees take pride in their work and feel a recognized part of a whole. There is the potential for the T to become a much better system. Is the system willing and able to rise to that challenge?





## NET COST OF SERVICE

A comparative statement of the 1983 and 1984 net cost of MBTA service is given on the following pages. Below a simplified statement of the sources and uses of funds provides a succinct picture of where MBTA funding comes from and what it pays for.

### MBTA 1984 BUDGET SUMMARY (000)

	CY 1984	CY 1983	VARIANCE	%
<hr/>				
SOURCES:				
Fare Revenue	101,021	94,940	\$6,081	6.4
Other Income	13,308	13,232	76	0.6
State Contract Asst.	61,376	55,218	6,158	11.2
Fed. Operating Asst.	26,499	21,338	5,161	24.2
USES:				
MBTA Provided Sevices	289,369	260,261	29,108	11.2
Contracted Services	51,560	45,168	6,392	14.2
Total Debt	80,588	74,086	6,502	8.8
Net Cost of Service	219,313	194,788	24,525	12.6
Commonwealth Int. Cost	11,185*	9,884		
TOTAL NET COST	230,498	204,672		12.6

\*estimated

The \$219 million net cost of service, plus the estimated Commonwealth interest cost, are paid from local and state budgets for fiscal year 1986. Forty-four percent of the net cost of CY 1984 will be supported by the property taxes of the residents of the 78 cities and towns in the T district; fifty-six percent, by state general revenues including individual and corporate income tax, sales tax and assorted minor taxes.

It should be noted that the Net Cost of Service would have been \$5.2 million higher, if the MBTA had not been the recipient of a one time only catch-up payment from the now defunct Section 5 federal grant program. Federal Operating Assistance at best



will continue at the 1983 level and more likely will be phased out in the coming years.

The \$29 million increase in MBTA delivered service reflected a 3.6% increase in revenue miles and a 7.4% increase in cost per revenue mile. The increase in cost per mile substantially exceeded the rate of increase in the Boston Consumer Price Index (4.9%) and was the largest increase since 1980-81. The major drivers of cost were number of employees and wage rates. Manpower increased 6.2% and union wage rates increased 4% on January 1 and 4% again on July 1 for an annual wage rate expense 6.1% above that of 1983 and a base wage at year's end 8.2% above that of the year previous.

The largest percentage increase for 1984 was in contracted services. The 14.2% increase reflects the impact of two major fires which disrupted Commuter Rail service and sent ridership on the northern routes plunging. Loss of fare revenue, cost of substitute service and extra fire related expense not covered by insurance or federal funds drove up Commuter Rail net cost. Also included in Contracted Services but totaling less than \$500,000 were increases in Local Service Subsidies for the suburban bus program and the RIDE, the paratransit system for the disabled.

Year	Cost of MBTA Provided Service*	Annual Revenue Miles	Cost Per Revenue Mile	Percent Change
1984	\$289,369,429	40,040,569	\$7.23	7.4%
1983	260,261,562	38,658,042	6.73	3.7
1982	240,574,511	37,067,965	6.49	(3.3)
1981	239,522,470	35,717,187	6.71	10.5
1980	240,267,954	39,613,068	6.07	8.8
1979	213,868,608	38,295,961	5.58	9.2
1978	194,293,302	37,991,810	5.11	

\*operating costs less debt, Commuter Rail & Local Service Subsidy





Year	Fare Revenue per Rev. Mi.	Percent Change	Net Cost per Rev. Mi.	Percent Change	Fare Coverage Ratio#
1984	\$2.52	2.4%	\$4.71	10.3%	34.9%
1983	2.46	(2.4)	4.27	7.6	36.5
1982	2.52	10.0	3.97	(10.2)	38.8
1981	2.29	37.1	4.42	0.5	34.2
1980	1.67	12.8	4.40	7.3	27.6
1979	1.48	2.1	4.10	12.0	26.5
1978	1.45		3.66		28.4

#Fare revenue divided by cost of MBTA provided service

With no increase in fares in 1984 but an apparent increase in ridership and/or an increase in fares reaching the bank (cf. p.40), fare revenue per revenue mile recovered from the loss in 1983 to regain the level it had reached in 1982. With costs increasing at a much faster rate than fare revenue, the net cost per revenue mile jumped 10.3%, the greatest increase since 1979. The fare coverage ratio for MBTA delivered service fell to 34.9% from 36.5%.

In 1984, for the first time since the MBTA's fiscal crises of 1979-1980, Management Rights legislation and Proposition 2 1/2, the service level (revenue miles) reached or surpassed the 1980 levels. Forty million revenue miles run in 1984 cost 19% more than similar mileage in 1980. The difference annualizes to a respectable 4.5% per year increase in cost. The challenge to the T is to continue to provide service to the district at a cost per service mile consistent with the general rise in consumer cost in the metropolitan area. The percentage change in the net cost per revenue mile in the last two years raises questions whether there is an easing up on the pursuit of cost control and the T is coasting on the savings from the early years of Management



Rights. The issues of wage settlements and worker productivity are key to keeping a harness on expense and not returning to the days of uncontrolled costs and shutdowns.

The complement to controlling expense is the setting of a reasonable and equitable fare policy. The Advisory Board Finance Committee has expressed increasing concern over a weakening fare recovery ratio and has utilized a ratio floor as a parameter in budget decisions for FY 1986. The Committee plans to do the same for FY 1987. Once again attention is drawn to the December 1983 Environmental and Socioeconomic Impact Report on the 1981 T fare increase which recommended that a fare revenue goal as a percentage of annual expense be established as policy by the MBTA and that fares be reviewed and/or adjusted annually in conjunction with the T's annual budget process. Small, frequent fare increases are more readily accepted by the public than less frequent major increases.

Closely related to fares are other sources of income for the T. For several years the Advisory Board has urged the MBTA to take a broad look at maximizing other revenues consistent with its service mandate. It is hoped that after 1 1/2 years of vacant and unsettled tenure in the Treasurer's chair, new leadership will finally address this issue. The Advisory Board itself has established a Revenue Review committee to look at revenue policy and its implementation and to make recommendations.

A number of other line items on the comparative net cost of service on the following pages show unusual increases or decreases and require further explanation.



TABLE II

## NET COST OF SERVICE CY 1984

	2nd 6 MONTHS FY 1984	1st 6 MONTHS FY 1985	CY 1984 ACTUALS	CY 1983 ACTUALS	CY 1984 OVER/UNDER CY 1983	
						%
					\$	
<b>INCOME</b>						
Rev from transportation	49,661,937	51,359,272	101,021,209	94,940,086	6,081,123	6.41%
Rev from other rwy. operations	2,041,030	2,368,919	4,409,949	3,784,834	625,115	16.52%
Non-operating income	3,715,010	4,224,031	7,939,041	7,689,134	249,907	3.25%
Gas & diesel taxes reimbursable	226,600	237,469	464,069	484,588	( 20,519)	( 4.23%)
Reimbursement from outside district	312,427	182,728	495,155	1,274,052	( 778,897)	(61.14%)
<b>TOTAL INCOME</b>	<b>55,957,004</b>	<b>58,372,419</b>	<b>114,329,423</b>	<b>108,172,694</b>	<b>6,156,729</b>	<b>5.69%</b>
<b>EXPENSES</b>						
Wages	78,965,387	83,208,569	162,173,956	145,869,188	16,304,768	11.18%
Gen & adm cost capitalized	( 812,863)	( 567,657)	( 1,380,520)	( 1,356,705)	( 23,815)	1.76%
MBTA Pensions	10,879,298	11,663,710	22,543,008	20,537,685	2,005,323	9.76%
F.I.C.A.	6,250,873	6,431,752	12,682,625	11,047,111	1,635,514	14.80%
Workmen's comp	2,261,083	2,808,467	5,069,550	6,054,221	( 984,671)	(16.26%)
Acc. & sickness ins.	210,467	240,265	450,732	399,982	50,750	12.69%
Group life ins.	358,161	240,471	598,632	622,734	( 24,102)	( 3.87%)
Blue Cross/Blue Shield	12,071,222	10,747,533	22,818,755	20,947,840	1,870,915	8.93%
Unemployment ins.	35,500	52,600	88,100	77,000	11,100	14.42%
Uniforms & work clothes	253,869	253,534	507,403	552,128	( 44,725)	( 8.10%)
Fringe benefits cost capitalized	( 4,116,159)	( 3,936,219)	( 8,052,378)	( 7,296,003)	( 756,375)	10.37%
<b>OPERATING WAGES &amp; FRINGE BENEFITS</b>	<b>106,356,838</b>	<b>111,143,025</b>	<b>217,499,863</b>	<b>197,455,181</b>	<b>20,044,682</b>	<b>10.15%</b>
<b>Materials &amp; other items</b>	<b>22,232,235</b>	<b>17,255,996</b>	<b>39,488,231</b>	<b>36,981,092</b>	<b>2,507,139</b>	<b>6.78%</b>
Injuries & damages	3,053,669	4,503,476	7,557,145	4,278,971	3,278,174	76.61%
Interest unfunded debt	6,694,182	8,364,773	15,053,955	14,411,611	647,344	4.49%
Fuel	12,764,286	11,052,705	23,816,991	20,589,066	3,227,925	15.68%
Taxes (other than above)	500,137	507,062	1,007,199	957,252	49,947	5.22%
Railroad commuter subsidy	25,267,070	23,885,530	49,152,600	43,226,412	5,926,188	13.71%
Local service subsidy	1,151,500	1,255,814	2,407,314	1,942,515	464,799	23.93%
<b>TOTAL OPERATING EXPENSES</b>	<b>178,019,917</b>	<b>177,968,381</b>	<b>355,988,298</b>	<b>319,842,100</b>	<b>36,146,198</b>	<b>11.30%</b>





	2nd 6 MONTHS FY 1984	1st 6 MONTHS FY 1985	CY 1984 ACTUALS	CY 1983 ACTUALS	CY 1984 OVER/UNDER CY 1983	
INCOME						
					\$	%
Int. on funded debt (MTA)	2,376,471	2,419,721	4,796,192	4,713,326	82,866	1.76%
Int. on funded debt (MBTA)	18,600,032	20,126,041	38,726,073	35,039,330	3,686,743	10.52%
Payment on funded debt (MTA)	1,441,463	1,441,463	2,882,926	2,752,926	130,000	4.72%
Payment on funded debt (MBTA)	9,432,500	9,432,500	18,865,000	17,015,000	1,850,000	10.87%
Misc. & bank charges	86,032	172,395	258,427	154,333	104,094	67.45%
FIXED CHARGES	31,936,498	33,592,120	65,528,618	59,674,915	5,853,703	9.81%
TOTAL CURRENT EXPENSES	209,956,415	211,560,501	421,516,916	379,517,015	41,999,901	11.07%
COST OF SERVICE IN EXCESS OF INCOME	153,999,411	153,188,082	307,187,493	271,344,321	35,843,172	13.21%
STATE FIN. CONTRACT (MTA)			3,000,000	3,000,000	0	.00%
STATE FIN. CONTRACT (MBTA)			50,695,002	46,176,296	4,518,706	9.79%
STATE FIN. CONTRACT (RR)			7,680,636	6,041,754	1,638,882	27.13%
FEDERAL OPERATING FUNDS			26,498,651	21,333,201	5,160,450	24.18%
NET COST OF SERVICE (LOSS)			219,313,204	194,788,070	24,525,134	12.59%



Blue Cross/Blue Shield, though showing a 8.93% increase, is well below the rate of increase in recent years (13.7% for 1983, 12.4% for 1982). It is not yet clear whether the improved performance for this self insured program is the result of management cost control efforts at the MBTA or a general area wide deceleration in medical related costs. Continuing efforts to contain the cost of this insurance are in order.

Injuries and Damages line item increased 76.6% in 1984. In the last two years that line item has increased 162%. Currently unlike the cities and towns and the state, the MBTA has no limit on its liability. Legislation was filed in 1985 to put such a limit in place. Both the Advisory Board and the MBTA testified in favor of its passage. In addition, all efforts should be made to keep accidents at a minimum through training of operators and maintenance of equipment.

The 16% increase in fuel costs reflects the much longer than expected shutdown of the Pilgrim Nuclear Plant which resulted in monthly surcharges on power consumption. Pilgrim went back on line in early 1985.

The Commuter Rail subsidy, a net figure, includes loss of revenue following the two bridge fires during 1984 (cf. p.77) as well as expense for alternative service. The local service subsidy increase covered expansion of the Ride to new service areas.

The increase in Fixed Charges line items reflected ongoing construction programs on the Red Line Extension and the new Orange Line as well as vehicle procurements and overhauls, track work and replacement of old power cable (cf. p.82).





The following pages detail a breakdown of expenses by department. The departments are aggregated into operating and non-operating or support departments.

Operating departments expense rose 10.1% from 1983 to 1984. When judged on a per revenue mile basis, expense rose 6.4% from \$4.86 per revenue mile to \$5.17. The cost of maintaining vehicles (buses and trains), a subset of operating costs, increased just 2% from 1983 to 1984. And when analyzed on a per revenue mile basis maintenance costs actually fell by \$.02. Transportation wage expense and utility and power costs were the factors driving operating expense. The wage expense in the transportation department rose over 10%. Of that part reflected a 7.4% increase in manpower, part an average 6.1% wage rate hike and part a 20% increase in overtime hours expended.

In June 1984, the Advisory Board approved a transfer of \$4,851,100 from the FY 1984 budget (Fixed Charges surplus) to be spent during FY 1985 on special maintenance projects above and beyond projects already in the FY 1985 budget. Projects listed were in the Rail Equipment Maintenance Department and the Engineering and Maintenance Department. As we go to print, there is not complete information available reconciling for CY 1984 regular budgeted costs and special projects monies. The second six months of CY 1984 covers 184 days or 50.4% of FY 1985. In that period of time Rail Equipment Maintenance spent but 41.5% of its FY budget. Its wage expense with adjustment for January wage increases was 7.8% below a pro rata share of the budget and materials expense was 34% below a pro rata share. It is diffi-



TABLE III

## OPERATING DEPARTMENT EXPENDITURES: 1984 COMPARED TO 1983

DEPARTMENT	2ND 6 MO. FY 1984	1ST 6 MO. FY 1985	TOTAL CY 1984	1983	CY 1984 OVER/UNDER CY 1983	
					\$	%
OPERATIONS						
wages	1,922,200	2,177,902	4,100,102	2,567,494	1,532,608	59.69
materials	17,908	20,010	37,918	9,658	28,260	292.61
services	1,398,751	1,915,433	3,314,184	191,403	3,122,781	N.A
loc service	1,151,500	1,063,460	2,214,960	1,983,411	231,549	11.67
TOTAL	4,490,359	5,176,805	9,667,164	4,751,966	4,915,198	103.44
TRANSPORT.						
wages	39,081,531	41,641,110	80,722,641	72,727,601	7,995,040	10.99
materials	36,787	30,721	67,508	50,489	17,019	33.71
services	( 516,845)	41,842	( 475,003)	1,103,834	(1,578,837)	N.A
uniforms	83,436	164,740	248,176	396,789	( 148,613)	(37.45)
TOTAL	38,684,909	41,878,413	80,563,322	74,278,713	6,284,609	8.46
ENG. & MAINT.						
wages	13,253,130	14,612,744	27,865,874	25,516,992	2,348,882	9.21
materials	2,415,047	909,044	3,324,091	3,704,862	( 380,771)	(10.28)
services	1,508,257	1,553,481	3,061,738	3,053,766	7,972	.26
utilities	6,149,488	4,814,041	10,963,529	9,138,848	1,824,681	19.97
electr power	9,060,319	7,692,660	16,752,979	13,844,314	2,908,665	21.01
TOTAL	32,386,241	29,581,970	61,968,211	55,258,782	6,709,429	12.14
RAIL EQUIP						
wages	7,084,654	7,670,446	14,755,100	14,592,636	162,464	1.11
materials	4,582,683	1,734,217	6,316,900	6,442,777	( 125,877)	( 1.95)
services	650,648	412,641	1,063,289	1,508,465	( 445,176)	(29.51)
TOTAL	12,317,985	9,817,304	22,135,289	22,543,878	( 408,589)	( 1.81)
GREEN LINE						
wages	3,820,751	3,997,435	7,818,186	6,870,144	948,042	13.80
materials	786,929	678,663	1,465,592	1,801,818	( 336,226)	(18.66)
services	249,762	185,588	435,350	617,932	( 182,582)	(29.55)
TOTAL	4,857,442	4,861,686	9,719,128	9,289,894	429,234	4.62



DEPARTMENT	2ND 6 MO. FY 1984	1ST 6 MO. FY 1985	TOTAL CY 1984	1983	CY 1984 OVER/UNDER CY 1983	
					\$	%
AUTOMOTIVE						
wages	5,567,364	5,963,897	11,531,261	11,019,280	511,981	4.65
materials	1,687,823	1,681,725	3,369,548	2,891,250	478,298	16.54
services	688,918	262,945	951,863	1,176,237	( 224,374)	(19.08)
gas & dis.	3,703,967	3,360,044	7,064,011	6,744,751	319,260	4.73
TOTAL	11,648,072	11,268,611	22,916,683	21,831,518	1,085,165	4.97
ALL OPERATING DEPARTMENTS						
wages	70,729,630	76,063,534	146,793,164	133,294,147	13,499,017	10.13
materials	9,527,177	5,054,380	14,581,557	14,900,854	( 319,297)	( 2.14)
services	3,979,491	4,371,930	8,351,421	7,651,637	699,784	9.15
fuel & power	12,764,286	11,052,704	23,816,990	20,589,065	3,227,925	15.68
utilities	6,149,488	4,814,041	10,963,529	9,138,848	1,824,681	19.97
other	1,234,936	1,228,200	2,463,136	2,380,200	82,936	3.48
TOTAL	104,385,008	102,584,789	206,969,797	187,954,751	19,015,046	10.12





TABLE IV

## COMPARISON 1983/1984 EXPENDITURES FOR NONOPERATING DEPARTMENTS

DEPARTMENT	2nd 6 MO. FY 1984	1ST 6 MO. FY 1985	TOTAL CY 1984	CY 1983	CY1984 OVER/UNDER CY1983	
					\$	%
EXECUTIVE						
wages	770,117	888,072	1,658,189	1,322,354	335,835	25.40
materials	120,875	120,666	241,541	293,943	( 52,402)	( 17.83)
services	85,825	210,693	296,518	369,404	( 72,886)	( 19.73)
TOTAL	976,817	1,219,431	2,196,248	1,985,701	210,547	10.60
TREASURER/CONT						
wages	1,848,592	1,643,349	3,491,941	3,673,538	( 181,597)	( 4.94)
materials	53,370	116,311	169,681	105,398	64,283	60.99
services	394,461	807,800	1,202,261	713,447	488,814	68.51
insurance	179,824	1,292,227	1,472,051	1,228,449	243,602	19.83
misc tax & tol	500,137	507,062	1,007,199	957,252	49,947	5.22
uniforms	629	7,273	7,902	1,746	6,156	352.58
other	362,353	( 119,054)	243,299	221,736	21,563	
TOTAL	3,339,366	4,254,968	7,594,334	6,901,566	692,768	10.04
MIS						
wages	321,344	431,311	752,655	836,065	( 83,410)	( 9.98)
materials	27,669	57,898	85,567	65,334	20,233	30.97
services	217,295	301,591	518,886	367,323	151,563	41.26
TOTAL	566,308	790,800	1,357,108	1,268,722	88,386	6.97
LAW						
wages	852,134	483,001	1,335,135	1,140,605	194,530	17.05
materials	2,188	889	3,077	3,515	( 438)	( 12.46)
services	182,476	295,545	478,021	344,537	133,484	38.74
inj. & dam.	3,053,669	4,503,474	7,557,143	4,454,422	3,102,721	69.65
TOTAL	4,090,467	5,282,909	9,373,376	5,943,079	3,430,297	57.72
POLICE						
wages	1,693,169	2,090,002	3,783,171	2,553,952	1,229,219	48.13
materials	3,998	10,325	14,323	2,967	11,356	382.74
services	118,943	170,540	289,483	254,112	35,371	13.92
uniforms	96,565	27,951	124,516	87,148	37,368	42.88
TOTAL	1,912,675	2,298,818	4,211,493	2,898,179	1,313,314	45.32



DEPARTMENT	2nd 6 MO. FY 1984	1ST 6 MO. FY 1985	TOTAL CY 1984	CY 1983	CY1984 OVER/UNDER CY1983	
					\$	%
REAL ESTATE						
wages	37,206	40,722	77,928	75,390	2,538	3.37
materials	233	147	380	170	210	123.53
services	20,654	385,557	406,211	459,276	( 53,065)	( 11.55)
utilities	( 211,972)	151,246	( 60,726)	( 128,266)	67,540	( 52.66)
TOTAL	( 153,879)	577,672	423,793	406,570	17,223	4.24
PERSONNEL						
wages	221,647	259,816	481,463	646,134	( 164,671)	( 25.49)
materials	1,095	13,559	14,654	16,116	( 1,462)	( 9.07)
services	105,294	114,225	219,519	329,890	( 110,371)	( 33.46)
TOTAL	328,036	387,600	715,636	992,140	( 276,504)	( 27.87)
LABOR RELATIONS						
Wages	216,018	210,565	426,583	180,464	246,119	136.38
Materials	2,427	3,574	6,001	1,044	4,957	474.81
Services	46,065	128,957	175,022	103,827	71,195	68.57
Worker's Comp	2,261,083	2,808,467	5,069,550	6,054,221	( 984,671)	( 16.26)
TOTAL	2,525,593	3,151,563	5,677,156	6,339,556	( 662,400)	( 10.45)
MATERIALS						
wages	979,810	1,037,502	2,017,312	1,860,753	156,559	8.41
materials	21,265	35,550	56,815	24,655	32,160	130.44
services	17,310	33,680	50,990	48,369	2,621	5.42
TOTAL	1,018,385	1,106,732	2,125,117	1,933,777	191,340	9.89
ALL NON-OPERATING						
wages	6,940,037	7,084,340	14,024,377	12,289,255	1,735,122	14.12
materials	233,120	358,919	592,039	513,142	78,897	15.38
services	1,188,323	2,448,588	3,636,911	2,990,185	646,726	21.63
other	6,242,288	9,178,646	15,420,934	12,876,708	2,544,226	19.76
TOTAL	14,603,768	19,070,493	33,674,261	28,669,290	5,004,971	17.46





cult to see how expenses could be so low if all budgeted work was being done in addition to the special projects work. In Engineering and Maintenance wage expense is fairly much on budget, but materials expense is approximately 13% below budget. A definitive answer on just how much maintenance work has been done including expenditure of special projects money will have to await the closing of FY 1985 books.

The 17.5% increase in non-operating departments from 1983 to 1984 stem in large part from the inclusion of Worker's Compensation expense under the Labor Relations Department. The other major increase was in the wage line items which reflect an increase of 14.1% in the number of non-operating personnel as well as an adjustment and upgrading of executive salaries.

#### CALENDAR YEARS AND FISCAL YEARS

Starting with calendar year 1984, there no longer exists an "approved" budget for the MBTA on a calendar year basis. Since June 1983, the Authority has by statute been under a July 1 to June 30 fiscal year. Cities and towns continue to be assessed on a calendar year net cost of service. T books are closed and audited twice a year. Advisory Board staff intend to monitor budget performance for both calendar and fiscal years. Of necessity, calendar year performance will be compared to previous years with attention to trends. Fiscal year performance will concentrate on budget to actual variance. An analysis of FY 1984 budget performance follows. It was first released in draft form in the fall of 1984.



# FISCAL YEAR 1984 MBTA BUDGET PERFORMANCE

The MBTA spent \$399 million on operations in the 1984 July - June fiscal year. The cost of MBTA provided service increased an annualized 9.1% and the Net Cost of Service rose 9.6% since CY 1982. Costs of non-operating departments were up 14.6%; those of operating departments, less \$2 million for special preventive maintenance projects, increased 7.6% on an annualized basis during the same period.

MBTA Provided Service		\$274,207,642
Labor Costs	\$204,688,842	
Materials and Services	38,855,201	
Fuel	22,877,640	
Other	5,719,556	
Special P.M. Projects	2,066,403	
Contracted Services		48,248,452
Commuter Rail	46,074,972	
"The Ride"	1,479,890	
Other	693,590	
Debt Service		76,597,860
Short Term Debt	12,811,548	
Bonds	63,786,312	
		-----
		\$399,053,954

This report documents some of the vital statistics of the MBTA's first fiscal year since the change from a calendar year budget. During FY 1984, and particularly during the last six months of the fiscal year, there was a significant increase in the cost per revenue mile of public transportation service. The cost per revenue mile rose from \$6.76 in the first six months to \$7.36 during the second six months, an increase which annualizes to 18.5%. It is not clear that this rate of increase will



persist, but it is a red flag and the Advisory Board will continue to monitor this measure of efficiency.

Year	Cost of MBTA Provided Service	Annual Revenue Miles	Cost Per Revenue Mile	Percent Change
FY1984	\$274,207,642	38,815,447	\$7.06	5.8%*
CY1982	240,574,511	37,067,965	6.49	(3.3)
CY1981	239,522,470	35,717,187	6.71	10.5
CY1980	240,267,954	39,613,068	6.07	8.8
CY1979	213,868,608	38,295,961	5.58	9.2
CY1978	194,293,302	37,991,810	5.11	

\*Annualized increase over 18 months from CY 1982 through FY 1984

#### LINE ITEM BUDGET - ACTUAL VS. PLANNED

There were important differences between planned and actual expenditures in FY 1984. Those figures are given on the following pages. Total income was \$2.3 million higher than anticipated. This 2.1% variation from budget was primarily in non-operating income, reflecting greater than anticipated investment income. From CY 1982 to FY 1984, total income increased by 2.4% on an annual basis. During the six months ending in June 1984, passenger revenue was up 5% from the same period a year before.

Two line items stand out as significantly over budget. Workmen's Compensation payments were one and a half times the amount planned or \$1.7 million over budget, and fuel expenditures were \$2.8 million greater than anticipated or 14% over budget. The Authority's progress in gaining control of Workmen's Compensation costs is evaluated in a later section of this





report.

Fuel costs increased \$2.7 million from the first to the second six month period. The budget overruns were \$540,231 (5.6%) in the first period and \$2,280,066 (21.7%) in the second period. The escalation of costs above budget apparently caught the Authority by surprise. The budget was planned on an anticipated eight week shutdown of the Pilgrim Nuclear Plant, but fuel adjustment differentials for seven months were paid in FY 1984. Authority figures place this additional cost at \$1.2 million. A delay in transferring power from 40 to 60 hz. and an Authority decision to operate its gas turbine for additional hours account for nearly \$900,000 of the remaining extra cost. General Manager O'Leary has indicated to the Advisory Board that every attempt will be made in the current year to keep fuel expenses within the authorized budget levels.

Because budget overruns were covered by transfers from line items in which expenditures were less than anticipated, it is useful to look at the sources and uses of such line item transfers.

LINE ITEM BUDGET TRANSFERS  
FY 1984

Sources		Uses	
Wages	\$109,021		
Pensions	1,364,401		
FICA	116,030		
Group Life	544,465		
Blue Cross/B S	251,602	Capital Charges	\$489,477
Unemployment	67,500	Workmen's Compensation	1,679,286
Uniforms	251,010	Accident and Sickness	27,363
	-----		-----
Sub-total labor	2,704,029		2,196,126



Injuries & Damages	\$167,360		
Intersect - Notes	14,403		
Taxes	28,859		
Commuter Rail	36,224	Fuel	2,820,297
Local Service Sub.	225,646	Materials & Other	944,795
Special PM Projects (Fixed Charges)	4,851,100	Special PM Projects	2,066,403
	<hr/>		<hr/>
Total Sources	\$8,027,621	Total Uses	\$8,027,621

The line item with the largest dollar surplus (except for fixed charges used for special PM projects) is Pensions. This line item was underspent in part because more than \$4.2 million in wages budgeted for straight time pay was not spent as anticipated, but was used for additional, unbudgeted overtime. Pension contributions are calculated only on straight time wages, not on overtime pay.

Two line items in the operating budget reflect costs charged to the capital budget for such things as the time the General Manager spends on capital projects and fringe benefits for employees in the Construction Directorate. Nearly half a million dollars in such anticipated capital payments were not made in FY 1984. The greater than anticipated spending in Materials and Other Items is discussed in the review of departmental budgets. More than half of the transfer from Fixed Charges which the Advisory Board allocated to special preventive maintenance projects covered other FY 1984 costs.





TABLE V

## MBTA FISCAL YEAR 1984 BUDGET PERFORMANCE

	1ST 6 MONTHS FY 1984	2ND 6 MONTHS FY 1984	TOTAL FY 1984	BUDGET FY 1984	ACTUAL OVER/UNDER BUDGET	%
					\$	
<b>INCOME</b>						
Rev from transportation	47,835,581	49,661,937	97,498,518	96,562,185	936,333	.97%
Rev from other rwy. operations	1,837,571	2,041,030	3,878,601	4,094,535	( 215,934)	( 5.27%)
Non-operating income	3,742,552	3,715,010	7,457,562	5,349,003	2,108,559	39.42%
Gas & diesel taxes reimbursable	262,900	226,600	489,500	590,110	( 100,610)	(17.05%)
Reimbursement from outside district	427,852	312,427	740,279	1,200,000	( 459,721)	(38.31%)
<b>TOTAL INCOME</b>	<b>54,107,456</b>	<b>55,957,004</b>	<b>110,064,460</b>	<b>107,795,833</b>	<b>2,268,627</b>	<b>2.10%</b>
<b>EXPENSES</b>						
Wages	73,947,283	78,965,387	152,912,670	152,382,816	529,854	.35%
Gen & adm cost capitalized	( 697,889)	( 812,863)	( 1,510,752)	( 1,776,934)	266,182	(14.98%)
MBTA Pensions	10,629,873	10,879,298	21,509,171	22,795,712	(1,286,541)	( 5.64%)
F.I.C.A.	5,590,327	6,250,873	11,841,200	11,912,510	( 71,310)	( .60%)
Workmen's comp	2,782,872	2,261,083	5,043,955	3,364,669	1,679,286	49.91%
Acc. & sickness ins.	159,136	210,467	369,603	342,240	27,363	8.00%
Group life ins	163,561	358,161	521,722	1,066,187	( 544,465)	(51.07%)
Blue Cross/Blue Shield	10,308,532	12,071,222	22,379,754	22,631,356	( 251,602)	( 1.12%)
Unemployment ins.	22,000	35,500	57,500	125,000	( 67,500)	(54.00%)
Uniforms & work clothes	241,943	253,869	495,812	746,822	( 251,010)	(33.61%)
Fringe benefits cost capitalized	( 4,054,178)	( 4,116,159)	( 8,170,337)	( 8,393,633)	223,296	( 2.66%)
<b>OPERATING WAGES &amp; FRINGE BENEFITS</b>	<b>99,093,460</b>	<b>106,356,838</b>	<b>205,450,298</b>	<b>205,196,745</b>	<b>253,553</b>	<b>.12%</b>
Materials & other items	17,927,913	22,232,235	40,160,148	37,910,406	2,249,742	5.93%
Injuries & damages	1,672,393	3,053,669	4,726,062	4,893,422	( 167,360)	( 3.42%)
Interest unfunded debt	6,117,366	6,694,182	12,811,548	12,825,951	( 14,403)	( .11%)
Fuel	10,113,354	12,764,286	22,877,640	20,057,343	2,820,297	14.06%
Taxes (other than above)	493,357	500,137	993,494	1,022,353	( 28,859)	( 2.82%)
Railroad commuter subsidy	20,807,902	25,267,070	46,074,972	46,111,196	( 36,224)	( .08%)
Local service subsidy	1,021,980	1,151,500	2,173,480	2,399,126	( 225,646)	( 9.41%)
<b>TOTAL OPERATING EXPENSES</b>	<b>157,247,725</b>	<b>178,019,917</b>	<b>335,267,642</b>	<b>330,416,542</b>	<b>4,851,100</b>	<b>1.47%</b>



	1ST 6 MONTHS FY 1984	2nd 6 MONTHS FY 1984	TOTAL FY 1984	BUDGET FY 1984	ACTUAL BUDGET	OVER/UNDER BUDGET
					\$	%
Int. on funded debt (MTA)	2,386,595	2,376,471	4,763,066	4,642,579	120,487	2.60%
Int. on funded debt (MBTA)	19,508,942	18,600,032	38,108,974	42,600,926	(4,491,952)	(10.54%)
Payment on funded debt (MTA)	1,376,463	1,441,463	2,817,926	2,747,926	70,000	2.55%
Payment on funded debt (MBTA)	8,507,500	9,432,500	17,940,000	18,505,000	( 565,000)	( 3.05%)
Misc. & bank charges	70,314	86,032	156,346	140,981	15,365	10.90%
FIXED CHARGES	31,849,814	31,936,498	63,786,312	68,637,412	(4,851,100)	( 7.07%)
TOTAL CURRENT EXPENSES	189,097,539	209,956,415	399,053,954	399,053,954	0	.00%
COST OF SERVICE IN EXCESS OF INCOME	134,990,083	153,999,411	288,989,494	291,258,121	(2,268,627)	( .78%)



## INJURIES AND DAMAGES

A danger signal is raised by an annualized 39% increase since CY 1982 in payments for Injuries and Damages. Tort claims and settlement amounts have grown alarmingly in the past few years. Nearly \$5 million was budgeted for such costs in FY1984, with a recommendation from the Advisory Board Finance Committee that the Authority establish a reserve fund with a portion of annual appropriations in anticipation of future costs. The \$3 million spent during the last six months of FY 1984 is more than the amount spent in all of CY 1982.

The fact that the MBTA has no statutory limit as do cities and towns, combined with an environment which includes a growing number of lawyers skilled in winning client cases and an image of the Authority as having deep pockets, has resulted in single awards as large as \$2.3 million. Here, as in the Workmen's Compensation area, forces outside the Authority's control have a major impact on Authority's costs, and there is a need to develop a strategy to maintain an equitable balance among competing interests.

A comparison of line item expenditures with planned spending gives less information about the performance of the Authority than does the more in-depth look at planned vs. actual budget performance at the department level which follows. The purpose of such comparisons is not to suggest that there is any virtue in slavishly following plans made by the Authority and the Advisory Board when budgets were proposed and authorized, but to determine whether or not planning was reasonably well done, whether management is improving its ability to control expenditures and





FISCAL 1984 STRAIGHT AND OVERTIME WAGES  
BY SIX MONTH PERIOD

Area	1st 6 Months			2nd 6 Months		
	Budget	Actual	Variance	Budget	Actual	Variance
All non-operating						
Straight Time	5,900,494	5,781,084	( 2.02%)	6,566,085	6,485,386	( 1.23%)
Overtime	238,380	382,468	60.44%	247,917	454,651	83.39%
TOTAL	6,138,874	6,163,552	.40%	6,814,002	6,940,037	1.85%
All operating						
Straight Time	66,101,811	64,568,466	( 2.32%)	69,300,352	66,815,249	( 3.59%)
Overtime	1,587,975	3,038,248	91.33%	1,984,230	3,914,381	97.27%
TOTAL	67,689,786	67,606,714	( .12%)	71,284,582	70,729,630	( .78%)
Operations						
Straight Time	1,335,015	1,205,397	( 9.71%)	1,445,798	1,772,476	22.59%
Overtime	54,600	127,282	133.12%	56,784	149,724	163.67%
TOTAL	1,389,615	1,332,679	( 4.10%)	1,502,582	1,922,200	27.93%
Transportation						
Straight Time	35,434,115	35,402,227	( .09%)	36,719,059	37,059,722	.93%
Overtime	816,493	1,714,318	109.96%	1,181,897	2,021,809	71.06%
TOTAL	36,250,608	37,116,545	2.39%	37,900,956	39,081,531	3.11%
Engineer. & Maint.						
Straight Time	13,086,144	12,411,433	( 5.16%)	14,183,613	12,604,690	(11.13%)
Overtime	169,129	507,955	200.34%	175,894	648,440	268.65%
TOTAL	13,255,273	12,919,388	( 2.53%)	14,359,507	13,253,130	( 7.70%)
Rail Equip. Maint.						
Straight Time	7,284,622	7,067,493	( 2.98%)	7,548,477	6,575,816	(12.89%)
Overtime	167,525	224,079	33.76%	174,226	508,838	192.06%
TOTAL	7,452,147	7,291,572	( 2.15%)	7,722,703	7,084,654	( 8.26%)
Green Line Maint.						
Straight Time	3,353,556	3,309,035	( 1.33%)	3,621,114	3,492,670	( 3.55%)
Overtime	221,888	278,049	25.31%	230,755	328,081	42.18%
TOTAL	3,575,444	3,587,084	.33%	3,851,869	3,820,751	( .81%)
Automotive Maint.						
Straight Time	5,608,359	5,172,881	( 7.76%)	5,782,291	5,309,875	( 8.17%)
Overtime	158,340	186,565	17.83%	164,674	257,489	56.36%
TOTAL	5,766,699	5,359,446	( 7.06%)	5,946,965	5,567,364	( 6.38%)



TABLE VI

## FISCAL YEAR 1984 MBTA OPERATING DEPARTMENT BUDGET PERFORMANCE

DEPARTMENT	1ST 6 MONTHS FY 1984	2ND 6 MONTHS FY 1984	TOTAL FY 1984	BUDGET FISCAL YEAR 1984	ACTUAL OVER/UNDER BUDGET	
					\$	%
OPERATIONS						
wages	1,332,679	1,922,200	3,254,879	2,892,197	362,682	12.54
materials	5,089	17,908	22,997	22,380	617	2.76
services	175,601	1,398,751	1,574,352	1,147,687	426,665	37.18
loc service	1,021,980	1,151,500	2,173,480	2,399,126	( 225,646 )	( 9.41 )
TOTAL	2,535,349	4,490,359	7,025,708	6,461,390	564,318	8.73
TRANSPORT.						
wages	37,116,545	39,081,531	76,198,076	74,151,564	2,046,512	2.76
materials	25,456	36,787	62,243	80,000	( 17,757 )	( 22.20 )
services	601,121	( 516,845 )	84,276	50,000	34,276	68.55
uniforms	263,993	83,436	347,429	377,000	( 29,571 )	( 7.84 )
TOTAL	38,007,115	38,684,909	76,692,024	74,658,564	2,033,460	2.72
ENG. & MAINT.						
wages	12,919,388	13,253,130	26,172,518	27,614,780	( 1,442,262 )	( 5.22 )
materials	1,944,836	2,415,047	4,359,883	4,144,636	215,247	5.19
services	1,990,512	1,508,257	3,498,769	3,599,992	( 101,223 )	( 2.81 )
utilities	3,755,311	6,149,488	9,904,799	11,448,374	( 1,543,575 )	( 13.48 )
electr power	6,853,282	9,060,319	15,913,601	12,886,398	3,027,203	23.49
TOTAL	27,463,329	32,386,241	59,849,570	59,694,180	155,390	.26
RAIL EQUIP						
wages	7,291,572	7,084,654	14,376,226	15,174,850	( 798,624 )	( 5.26 )
materials	3,290,452	4,582,683	7,873,135	4,436,208	3,436,927	77.47
services	831,715	650,648	1,482,363	743,669	738,694	99.33
TOTAL	11,413,739	12,317,985	23,731,724	20,354,727	3,376,997	16.59
GREEN LINE						
wages	3,587,084	3,820,751	7,407,835	7,427,313	( 19,478 )	( .26 )
materials	612,764	786,929	1,399,693	2,345,879	( 946,186 )	( 40.33 )
services	236,318	249,762	486,080	1,048,519	( 562,439 )	( 53.64 )
TOTAL	4,436,166	4,857,442	9,293,608	10,821,711	( 1,528,103 )	( 14.12 )





DEPARTMENT	1ST 6 MONTHS FY 1984	2ND 6 MONTHS FY 1984	TOTAL FY 1984	BUDGET FISCAL YEAR 1984	ACTUAL OVER/UNDER BUDGET	
					\$	%
AUTOMOTIVE						
wages	5,359,446	5,567,364	10,926,810	11,713,664	( 786,854)	( 6.72)
materials	1,450,337	1,687,823	3,138,160	3,278,330	( 140,170)	( 4.28)
services	689,092	688,918	1,378,010	1,222,259	155,751	12.74
gas & dis.	3,260,075	3,703,967	6,964,042	7,170,945	( 206,903)	( 2.89)
TOTAL	10,758,950	11,648,072	22,407,022	23,385,198	( 978,176)	( 4.18)
ALL OPERATING DEPARTMENTS						
wages	67,606,714	70,729,630	138,336,344	138,974,368	( 638,024)	( .46)
materials	7,328,934	9,527,177	16,856,111	14,307,433	2,548,678	17.81
services	4,524,359	3,979,491	8,503,850	7,812,126	691,724	8.85
fuel & power	10,113,357	12,764,286	22,877,643	20,057,343	2,820,300	14.06
utilities	3,755,311	6,149,488	9,904,799	11,448,374	( 1,543,575)	( 13.48)
other	1,285,973	1,234,936	2,520,909	2,776,126	( 255,217)	( 9.19)
TOTAL	94,614,648	104,385,008	198,999,656	195,375,770	3,623,886	1.85



whether changes in internal priorities or external conditions result in reasonable budget tradeoffs which maintain policy objectives. The Advisory Board Finance Committee has recommended that major changes in resource allocation which occur during the year be reviewed with the Advisory Board, whether or not such transfers require formal Advisory Board approval.

#### DEPARTMENTAL BUDGETS - ACTUAL VS. PLANNED

Nearly 90% of expenditures which are the responsibility of departments occur in the five units reporting to the Operations Directorate and 70% of those expenditures are for wages. Numbers showing budget performance in operating departments are given on the next page, followed by more detailed wage information.

The numbers show that straight time wages budgeted for maintenance departments (Engineering and Maintenance, Rail Equipment Maintenance, Green line Maintenance and Automotive Equipment Maintenance) were underspent by \$4,524,283. Even if the extra \$1.5 million spent on overtime wages is netted from that number, wage expenditures were about \$3 million less than planned. The 16% underexpenditure in straight time wages is a major departure from the priorities presented to the Advisory Board last year and represents hundreds of thousands of hours not spent on maintenance which had been planned and budgeted. Straight time wages are calculated on the basis of needed manpower for particular tasks. Assuming an average hourly rate of \$12.50, maintenance departments were under their planned strength by 173 employees. Even if an assumption is made that additional overtime was used in a conscious tradeoff for planned



manpower levels, 283,166 manhours of budgeted maintenance work was not done in FY 1984, 40% of it in the Engineering and Maintenance Department. Such maintenance was listed as the highest priority by the Operations Directorate in the requested funding for special preventive maintenance projects. Those maintenance departments which are most under budget in straight time wages tend to be most over budget in overtime wages.

Most of the \$3 million unexpended in wages for maintenance department personnel was used for wage spending in excess of budget in the Transportation Department, particularly for overtime pay which was 87% over budget. Straight time wages in Transportation were less than one half of one percent over budget.

Spending of both budgeted straight time wages on overtime and of budgeted maintenance department wages on transportation was more pronounced during the second six month period. Straight wage expenditures in Engineering & Maintenance were budgeted to increase 8% and overtime 4% from the first to the second period. The actual increases were 1.6% and 27.7% respectively. This phenomenon was even more pronounced in Rail Equipment Maintenance where wage increases from the first to the second six months were as follows:

	Planned	Actual
Straight Time	3.6%	(7.0%)
Overtime	4.0%	227.1%





These figures and the information on overtime hours lead to the observations that manpower planning at the Authority is not carefully enough done and that a real evaluation of the tradeoffs between hiring additional personnel and use of overtime is overdue.

Expenditures for both materials (57%) and services (99%) were considerably over budget in the Rail Equipment Maintenance department as extra resources were allocated to keeping Red Line cars in operation. On the other hand, \$1.5 million (44%) less than the planned amount was spent on materials and services for maintenance of Green Line vehicles, leaving that department with the dubious distinction of having spent the smallest proportion of its planned budget of all operating departments.

Both the Advisory Board and the Authority considerably overestimated the increased cost of utilities. The Board reduced the request by \$1,401,337, but the budgeted amount was still too great by \$1.5 million.

The budget performance of operating departments as a whole shows a 1.2% departure from planned spending. That percentage however, does not begin to cover the variation - ranging from 54% under budget to 99% over budget shown in the departmental results. As departmental spending is disaggregated further, the discrepancies increase. Such performance in operating departments suggests that planning , particularly manpower planning, and control functions, while considerably better than several years ago, can still be improved. And it calls into question the adherence to or existence of policy objectives which



should guide both the original budget planning and the subsequent resource reallocation decisions.

Budget performance for non-operating departments is given on the following pages. Expenditures in these nine critical support departments are only 14% of those in operating departments. Five departments are under or within one half of one percent of budget. Workmen's Compensation, chargeable to the Labor Relations Department, but representing costs for all Authority personnel, is the area most over budget in dollar terms. The fact that stands out about non-operating departments is that, with the single exception of MIS, they are all over budget in "Services": the Executive Department by 30%, Treasurer/Controller by 95%, Law by 54%, combined Personnel and Labor Relations by 57%. A significant amount of these costs was for consultants.

Major sources and uses of reallocated funding resources among departments is as follows:

#### MAJOR SOURCES AND USES OF FUNDS - DEPARTMENTS

Major Sources		Major Uses	
-----		-----	
Wages, Mntc. Depts	\$3,047,218	Wages, Trnsptatn.	\$2,046,512
Utilities	2,288,296	Wages, other	513,395
Local Ser. Sub.	225,646	Materials, Operating	1,243,730
Special P.M. Projects	2,784,697	Services, Op., non-op.	
Fringe Benefits	2,348,157	and gen. activity	2,336,241
		Electric Power	3,027,203
		Workmen's Comp.	1,696,343
			-----
Sources	\$10,696,014	Uses	\$10,863,524

Totals do not agree because only major amounts have been listed.





TABLE VII

## FISCAL YEAR 1984 MBTA NON-OPERATING DEPARTMENT BUDGET PERFORMANCE

DEPARTMENT	1ST 6 MONTH FY 1984	2ND 6 MONTH FY 1984	TOTAL FY 1984	BUDGET FY 1984	ACTUAL OVER/UNDER BUDGET	
					\$	%
EXECUTIVE						
wages	662,059	770,117	1,432,176	1,318,781	113,395	8.60
materials	177,286	120,875	298,161	348,373	( 50,212)	( 14.41)
services	201,168	85,825	286,993	221,173	65,820	29.76
TOTAL	1,040,513	976,817	2,017,330	1,888,327	129,003	6.83
TREASURER/CONT						
wages	1,851,230	1,848,592	3,699,822	3,830,078	( 130,256)	( 3.40)
materials	60,690	53,370	114,060	105,292	8,768	8.33
services	257,362	394,461	651,823	333,585	318,238	95.40
insurance	1,228,449	179,824	1,408,273	1,442,721	( 34,448)	( 2.39)
misc tax & tol	493,357	500,137	993,494	1,022,353	( 28,859)	( 2.82)
uniforms	577	629	1,206	25,831	( 24,625)	( 95.33)
other	( 648,373)	362,353	( 286,020)		( 286,020)	
TOTAL	3,243,292	3,339,366	6,582,658	6,759,860	( 177,202)	( 2.62)
MIS						
wages	399,570	321,344	720,914	607,654	113,260	18.64
materials	25,884	27,669	53,553	53,250	303	.57
services	141,362	217,295	358,657	473,189	( 114,532)	( 24.20)
TOTAL	566,816	566,308	1,133,124	1,134,093	( 969)	( .09)
LAW						
wages	521,312	852,134	1,373,446	1,354,518	18,928	1.40
materials	1,726	2,188	3,914	5,711	( 1,797)	( 31.47)
services	136,442	182,476	318,918	177,405	141,513	79.77
inj. & dam.	1,672,393	3,053,669	4,726,062	4,893,422	( 167,360)	( 3.42)
TOTAL	2,331,873	4,090,467	6,422,340	6,431,056	( 8,716)	( .14)
POLICE						
wages	1,349,968	1,693,169	3,043,137	3,017,400	25,737	.85
materials	2,199	3,998	6,197	4,600	1,597	34.72
services	158,731	118,943	277,674	250,638	27,036	10.79
uniforms	77,819	96,565	174,384	210,882	( 36,498)	( 17.31)
TOTAL	1,588,717	1,912,675	3,501,392	3,483,520	17,872	.51



DEPARTMENT	1ST 6 MONTH FY 1984	2ND 6 MONTH FY 1984	TOTAL FY 1984	BUDGET FY 1984	ACTUAL OVER/UNDER BUDGET	
					\$	%
REAL ESTATE						
wages	26,666	37,206	63,872	72,328	( 8,456)	( 11.69)
materials		233	233	1,800	( 1,567)	( 87.06)
services	447,017	20,654	467,671	55,708	411,963	739.50
utilities	( 320,249)	( 211,972)	( 532,221)	212,500	( 744,721)	(350.46)
TOTAL	153,434	( 153,879)	( 445)	342,336	( 342,781)	(100.13)
PERSONNEL						
wages	222,410	221,647	444,057	948,812*	( 108,273)*	( 11.41)*
materials	4,370	1,095	5,465	8,936	0	.00
services	103,591	105,294	208,885	233,447	125,330	53.69
wkmn's comp				3,364,669	1,679,286	49.91
TOTAL	330,371	328,036	658,407	4,555,864	1,696,343	37.23
LABOR RELATIONS						
Wages	180,464	216,018	396,482			
Materials	1,044	2,427	3,471			
Services	103,827	46,065	149,892			
Worker's Comp	2,782,872	2,261,083	5,043,955			
TOTAL	3,068,207	2,525,593	5,593,800			
MATERIALS						
wages	949,873	979,810	1,929,683	1,803,305	126,378	7.01
materials	9,341	21,265	30,606	20,917	9,689	46.32
services	36,805	17,310	54,115	17,098	37,017	216.50
TOTAL	996,019	1,018,385	2,014,404	1,841,320	173,084	9.40
ALL NON-OPERATING						
wages	6,163,552	6,940,037	13,103,589	12,952,876	150,713	1.16
materials	282,540	233,120	515,660	548,879	( 33,219)	( 6.05)
services	1,586,305	1,188,323	2,774,628	1,762,243	1,012,385	57.45
other	5,286,845	6,242,288	11,529,133	11,172,378	356,755	3.19
TOTAL	13,319,242	14,603,768	27,923,010	26,436,376	1,486,634	5.62

\*Budget and comparisons are for combined Personnel and Labor Relations



## REVENUE AND RIDERSHIP

In 1984, 90.3% of T revenue came from fares. Thirty percent was received through the pass program, 69% directly from the farebox and 1% from student passes and other minor accounts. In 1983, fares accounted for 87.8% of revenue with 29% coming from the pass program and 70% from the farebox. A 6.4% increase in fare revenue and a 61.1% decrease in reimbursement from outside districts, made fares a greater portion of total revenue for the year.

Since fares remained stable in 1984, the increase in fare revenue can be ascribed to an increase in ridership and/or in fare revenue reaching the bank. In May 1984, 34 MBTA revenue collection agents were arrested on charges of larceny of MBTA funds. At this time, there is no estimate of funds lost through theft in 1984 or previous years. Since the arrests, new procedures have been in place to secure all fare receipts.

Period	1983 FARE REVENUE	1984 FARE REVENUE	VARIANCE	%
1	\$7,332,442	\$7,444,016	\$111,574	1.5
2	7,451,624	7,793,974	342,350	4.6
3	8,837,826	9,237,748	399,922	4.5
4	7,583,688	8,097,686	513,998	6.8
5	7,595,219	7,885,094	289,875	3.8
6	8,302,705	9,203,419	900,714	10.8
7	7,247,904	7,530,704	282,800	3.9
8	7,140,695	7,692,563	551,868	7.7
9	8,912,442	9,579,917	667,475	7.5
10	7,811,441	8,323,106	511,665	6.6
11	7,716,316	8,285,675	569,359	7.4
12	9,007,783	9,947,306	939,523	10.4
	<hr/>	<hr/>	<hr/>	<hr/>
	\$94,940,086	\$101,021,208	\$6,081,122	6.4%





Changes in other income line items for the year include a 16.5% increase in revenue from Other Railway Operations. This line item covers parking lots, station concessions and advertising. Revenue from a full year of operating the Quincy-Adams parking garage (opened 9/83) and an increase in advertising rates by the contractor who manages advertising for the T account for the increase in income.

Non-operating income rose 3.25% though interest rates were lower than expected and spreads between tax exempt and short term investment rates were not very great. Proceeds from the sale/leaseback of vehicles and earnings from the new tax exempt Commercial Paper Program boosted income above the previous year.

Reimbursement from outside districts fell 61.14% because other regional transit authorities which generally reimburse the MBTA for Commuter Rail with Federal money have had such funds drastically cut. The Commonwealth has offset this with a substantial increase in State Contract Assistance (RR).

The Advisory Board no longer uses MBTA estimates of Ridership. The Authority continues to use once a year sampling (done by CTPS) of the fare mix (how many people on each mode use passes/tokens/reduced fares, etc.) to derive an average fare which becomes the basis for estimating ridership in conjunction with monthly fare receipts. If nothing else, the events of last May in the money room underscore the limitations of revenue based ridership figures. Further, the fast growth of the Pass Program shows how dynamic the fare mix actually is.



Once again the Advisory Board strongly recommends that the Authority develop a program for collecting ridership information on a regular basis. Such information is critical for service planning and for responsible fare policy development.





## MANPOWER

Average monthly manpower increased by 319 persons (full time equivalents) or 5.2% between the 4th quarter of 1983 and the 4th quarter of 1984. Transportation services gained 150 workers for a 4.9% increase; maintenance services were up 79 for a 3.8% rise; administrative and support services increased by 75 employees for a 13.2% increase; and Construction and Commuter Rail increased manpower by 14 or 3.5%.

Changes in maintenance service manpower included a shift of personnel from capital to operating budgets with capital employees being almost halved. No other area experienced such a shift. The only operating department to lose manpower in 1984 was Rail Equipment Maintenance which lost 56 workers or 6.2% of its 1984 average size workforce. A shift from capital to operating held operating manpower just below the 1983 level (by 5 full time equivalents) while a major loss of 51 workers took place in the capital area.

Given the series of crises the Authority was plagued with in 1984 and the resultant strain placed on manpower in certain departments, it is difficult to get a handle on the adequacy of manpower levels for "normal operations". Further, the manpower data which is available lists numbers on the payroll including long term disabled, etc., not active employees. Nonetheless, there is a sense that the maintenance area may still be tight and in need of additional resources. Other areas appear to carry appropriate levels for current needs.



TABLE VIII

## 1984 MANPOWER BY FUNCTION

FUNCTION	1ST Quarter		2nd Quarter		3rd Quarter		4th Quarter	
	Capital Oper.		Capital Oper.		Capital Oper.		Capital Oper.	
TRANSPORTATION SERVICES	4	3,122	0	3,165	0	3,231	0	3,195
MAINTENANCE SERVICES	56	2,018	49	2,106	35	2,150	47	2,110
ADMINISTRATIVE SUPPORT SERVICES	53	563	37	590	42	614	51	593
CONSTRUCTION & COMMUTER RAIL	393	21	391	27	399	21	391	24
	506	5,724	477	5,888	476	6,016	489	5,922

TABLE IX

## 1984 MANPOWER AVERAGES BY DEPARTMENT

DEPARTMENT	1ST Quarter		2nd Quarter		3rd Quarter		4th Quarter	
	Capital Oper.		Capital Oper.		Capital Oper.		Capital Oper.	
EXECUTIVE	5	103	5	106	7	105	8	109
T LIBRARY	0	0	0	3	0	4	0	2
OPERATIONS	9	79	9	83	8	116	12	124
TRANSPORTATION	0	44	0	43	0	55	0	54
RAIL LINES		1,077	0	1,123	0	1,156	0	1,128
SURFACE	2	2,001	0	1,999	0	2,020	0	2,013
ENGINEER & MAINT	13	894	16	958	8	982	18	962
MAINT SHOPS	0	331	0	320	0	331		329
EQUIP MAINT	43	793	33	828	27	837	29	819
CONSTRUCTION	393	6	391	12	399	5	391	8
TREASURER/CONTR	18	113	3	130	7	122	8	89
LAW	4	44	3	45	3	41		41
REAL ESTATE	3	7	4	6	4	6	5	6
POLICE	0	112	0	113	0	113	0	113
PERSONNEL	0	32	0	32	0	31	0	33
MATERIALS	14	73	3	72	13	76	16	76
RAILROAD OPER.	0	15	0	15	0	16	0	16



## ABSENTEEISM

Absent hours per T employee declined in 1984. The decrease, though not a large one at 2.8%, is significant because it reverses a trend of escalating absenteeism. The years 1980 through 1983 saw increases of 19.6%, 19.9% and 1.6% respectively. At last, the T's efforts to curtail the misuse of sick and industrial accident hours appears to be producing some of the desired effect.

However, absenteeism per employee is still significantly above 1980 levels. In 1980 the average number of hours lost per employee was 113.4; in 1984 it was 160.6, an increase of 42% or six days less work per year from each T employee. If the T could return to its 1980 absence rate, the Authority would gain in productivity the equivalent of 147 man years of work. At the current salary level for operators, that 147 man years is worth approximately \$6.6 million in wages and fringe benefits. Thus, although 1984 has been a step in the right direction, it is a small step and the T has a long distance to go to bring absenteeism to acceptable levels.

Though absence hours per employee decreased in 1984, the total number of hours lost to absences at the MBTA actually increased because of the increase in manpower. Five hundred twenty-four man years of potentially productive time (based on a 40 hour week/48 week year) were lost. Forty-five percent of this lost time was from sick leave; thirty-six percent from claimed on the job injury; the rest divided among categories such as suspension, jury duty, AWOL, etc.

Sick hours per employee increased by 1.8% between 1983 and





1984, while time lost per employee to industrial accident claims decreased by 14.3%. In 1984, on average, each of the more than 6000 Authority employees lost 7.1 days to work related accidents, down from 8.3 days in 1983. However, when compared with the 1980 level of 3.2 days, time lost to industrial accident claims in 1984 has more than doubled.

The total number of hours claimed for accidents decreased from 402,417 in 1983 to 357,399 or by 11.2%. This is the equivalent of adding 22.4 people to the workforce for the year. At the current operator salary levels, 22.4 workers would have cost the T just over \$1 million in wages and fringe benefits. Virtually every department showed decreases in industrial accident hours for 1984. But because of changes in the method of allocating hours among the departments, meaningful comparisons at the department level are not possible for 1983 and 1984.

In August 1983, the Authority contracted with the firm of Murphy and Beane to manage all new workmen's compensation claims leaving the T free to manage/settle the then large backlog of old claims. Subsequently, new claims have shown a marked decline. From August 1983 to January 1985 the number of employees on the workmen's compensation payroll declined by 29% and the average cost of the payroll fell 33.5% according to a report filed with the T Board of Directors in February. The reasons cited for the improved situation are "better claims management by both Murphy and Beane and the Authority, introduction of a light duty program and the judicious use of lump sum settlements." The Advisory Board applauds the progress made in this area and encourages a



continuing commitment in order that time lost to accidents be kept to an acceptable level.

Time lost to illness reached its highest point in 1981 when the average absence charged to sick leave was 9.6 days. Since then, sick leave absence has declined but in a slow and erratic fashion. Currently, employees average 9.1 days of sick leave each year. Use of sick leave varies tremendously among departments with Rail Lines registering the highest use at 14 days per person and Commuter Rail and Real Estate averaging less than one day per employee. Most operating departments registered between 7 and 10 sick days for each employee.





TABLE X

AVERAGE ABSENT HOURS PER EMPLOYEE  
BY FUNCTIONAL AREA

	TOTAL ABSENTEEISM -----				
	Q1	Q2	Q3	Q4	Total
Transportation	45.2	44.1	46.2	48.3	183.8
Maintenance	44.1	39.1	34.7	27.6	145.5
Administration	17.1	23.9	50.5	46.2	137.7
Construction & CR	19.5	12.4	10.8	11.1	53.8

	SICK LEAVE -----				
	Q1	Q2	Q3	Q4	TOTAL
Transportation	23.3	21.1	22.5	22.8	89.7
Maintenance	18.6	14.8	15.2	13.2	61.8
Administration	11.8	9.8	7.6	7.3	36.5
Construction & CR	13.2	8.2	8.0	7.4	36.8

	INDUSTRIAL ACCIDENTS -----				
	Q1	Q2	Q3	Q4	TOTAL
Transportation	14.6	13.2	14.1	15.5	57.4
Maintenance	21.0	20.4	15.7	10.5	67.6
Administration	2.4	2.3	13.6	21.5	39.8
Construction & CR	4.2	3.3	2.1	3.0	12.6



TABLE XI

AVERAGE HOURS PER EMPLOYEE  
BY DEPARTMENT

## SICK LEAVE

	1984	1983	CHANGE	% CHANGE
	----	----		
Executive	32.77	31.61	1.16	3.7%
Operations	20.79	14.98	5.81	38.8%
Transportation	36.35	39.70	( 3.35)	( 8.4%)
Rail Lines	111.84	108.38	3.46	3.2%
Surface Lines	78.55	74.12	4.43	6.0%
Eng. & Maint.	56.23	60.30	( 4.07)	( 6.7%)
Maint. Shops	73.45	79.98	( 6.53)	( 8.2%)
Equip. Maint.	66.46	64.09	2.37	3.7%
Construction	37.93	45.51	( 7.58)	(16.7%)
Treas/Contr (MIS)	39.22	60.39	(21.17)	(35.1%)
Law	42.27	29.75	12.52	42.1%
Real Estate	5.37	1.45	3.92	270.3%
Police	41.61	60.03	(18.42)	(30.7%)
Personnel	13.03	18.44	( 5.41)	(29.3%)
Materials	59.78	44.04	15.74	35.7%
Rail Operations	6.19	25.19	(19.00)	(75.4%)

AVERAGE HOURS PER EMPLOYEE  
BY DEPARTMENT

## INDUSTRIAL ACCIDENTS

	1984	1983	CHANGE	% CHANGE
	----	----		
Executive	2.54	.64	1.90	296.9%
Operations	199.27	.63	198.64	
Transportation	.00	1.74	( 1.74)	(100.0%)
Rail Lines	52.77	64.29	(11.52)	( 17.9%)
Surface Lines	61.24	68.39	( 7.15)	( 10.5%)
Eng. & Maint.	56.24	76.86	(20.62)	( 26.8%)
Maint. Shops	65.78	86.68	(20.90)	( 24.1%)
Equip. Maint.	80.45	98.34	(17.89)	( 18.2%)
Construction	13.09	13.75	( .66)	( 4.8%)
Treas/Contr (MIS)	1.57	10.63	( 9.06)	( 85.2%)
Law	.00	.83	( .83)	(100.0%)
Real Estate	.00	.00	.00	
Police	22.24	88.14	(65.90)	( 74.8%)
Personnel	13.03	.00	13.03	
Materials	8.80	62.37	(53.57)	( 85.9%)
Rail Operations	.00	.00	.00	



TABLE XII  
ABSENTEEISM  
AVERAGE HOURS PER EMPLOYEE

	TOTAL ABSENCES				
	1984	1983	1982	1981	1980
	----	----	----	----	----
1ST Q	40.3	41.0	41.7	34.0	29.2
2ND Q	38.3	41.0	44.9	33.9	26.6
3RD Q	40.6	43.2	40.1	36.1	29.4
4TH Q	41.3	39.4	35.9	31.7	28.2
TOTAL	160.6	164.6	162.6	135.6	113.4

	SICK LEAVE				
	1984	1983	1982	1981	1980
	----	----	----	----	----
1ST Q	19.9	18.4	21.2	21.2	19.2
2ND Q	17.0	17.7	19.2	19.6	15.8
3RD Q	17.6	18.3	17.7	20.0	17.1
4TH Q	18.1	16.9	15.7	16.7	17.8
TOTAL	72.6	71.3	73.7	77.5	69.8

	INDUSTRIAL ACCIDENTS				
	1984	1983	1982	1981	1980
	----	----	----	----	----
1ST Q	14.8	16.2	14.6	7.4	5.8
2ND Q	13.9	16.4	16.2	9.2	6.2
3RD Q	13.8	18.5	15.1	10.6	7.5
4TH Q	14.5	15.3	14.0	9.7	6.0
TOTAL	57.0	66.5	59.9	36.9	25.4





## OVERTIME

Overtime expense charged to the operating budget increased 37.6% from 1983 to 1984 while overtime hours were up 27.4%. In 1983 overtime wages accounted for 4.2% of wage expense; in 1984, for 5.1%. The increase in hours and cost came despite a rise in the number of Authority employees which was expected to lower overtime expense. A series of unforeseen crises explain much of the increase.

While many operating departments registered significant increases in overtime, Police and Rail Equipment (among the major users) showed particularly sharp rises with 97% and 86% increases respectively.

Much of police overtime appears directly related to increased responsibilities with revenue collection following the indictment in May 1984, of Authority personnel for larceny of T funds. Over 70% of police overtime fell in the second half of the year when officers were accompanying treasury personnel on all collection of receipts from stations. If the rate of police overtime use for the first six months had continued for the entire year, police overtime would have been approximately 60% of its actual total. That figure, approximately 27,000 hours, would put 1984 hours very close to 1983 overtime hours. Since the T police force increased its manpower by 50% as of January 1984, it is difficult to understand the need for that much overtime. One of the justifications for the increase in police was the very high use of overtime in 1983. The Advisory Board will continue to monitor



closely use of overtime in the Police Department.

Rail Equipment overtime can be linked to extensive problems with Red Line equipment early in 1984 as well as a shortage of manpower in the first quarter of the year. Between the fourth quarter of 1983 and the first quarter of 1984 the number of employees in the department dropped by 60 or 7%. New hires in the second and third quarters were presumably crucial in easing the overtime for the rest of the year. In the first three months of 1984 Rail Equipment logged 12,800 hours of overtime or 35% of the year's total. The two Authority employees earning the greatest dollar amount in overtime for that quarter were both Rail Equipment workers. According to MBTA PER 680 they both earned more in overtime than they did in straight wages. One averaged between 37 and 49 overtime hours per week; and the other between 27 and 35 hours overtime each week for the first quarter. In subsequent quarters their overtime average fell closer to 20 hours per week. Rail equipment workers earn time and a half for weekdays and Saturdays and double time for overtime Sundays and holidays.

The Transportation department accounted for 45.8% of all overtime recorded on the operating budget. This was a 30% increase in overtime expense over 1983 and a 20% increase in number of overtime hours. Added service to compensate for loss of full commuter rail service stemming from two bridge fires (January and November) explains most of the increase.

With Commuter Rail restored at North Station, the Red Line running more smoothly and more personnel in Rail Equipment, overtime hours for 1985 should drop.





One hundred sixty three employees earned over \$10,000 in overtime in 1984. Of the top 100, 29 were MBTA police, 13 worked at Cabot Garage on Red Line equipment and 10 were involved in training on the surface lines. The top overtime earner was a revenue collection foreman who put in untold hours (averaging 40 hours per week for the third quarter) all summer helping to straighten out the money room after the indictment of 34 revenue employees. When permanent changes in revenue collection and its accounting are finally implemented, both police overtime and that of revenue collection workers should drop.

The number of total work hours put in each week over the course of an extended period by some T employees raises questions about health, safety and productivity. Eighty hour weeks for a full quarter do neither the Authority nor the individual employee any good. If there is an MBTA policy limiting the amount of weekly overtime that an employee can work, someone should reexamine how reasonable it is and/or see that it is enforced. If there isn't, the issue needs to be addressed. No matter how skilled, a maintenance worker ceases to function at top level far short of his 89th hour of work in one week let alone 13 weeks running!



TABLE XIII  
OVERTIME DOLLARS AND HOURS

DOLLARS (OPERATIONS)	1984 ----	1983 ----	VARIANCE	% CHANGE
EXECUTIVE OFFICE	47,978	22,384	25,594	114%
DIRECTOR OF OPERATIONS	326,776	192,691	134,085	70%
TRANSPORTATION	3,820,005	2,939,652	880,353	30%
ENGINEERING & MAINTENANCE	1,127,974	910,870	217,104	24%
TRANSPORTATION LIBRARY	0	0	0	0%
RAIL EQUIPMENT MAINTENANCE	806,377	433,748	372,629	86%
GREEN LINE	545,664	489,221	56,443	12%
AUTOMOTIVE	479,674	348,944	130,730	37%
CONSTRUCTION	10,508	1,276	9,232	724%
TREASURER/CONTROLLER	274,399	247,580	26,819	11%
LAW	0	0	0	0%
REAL ESTATE MANAGEMENT	0	0	0	0%
POLICE	848,946	431,970	416,976	97%
PERSONNEL	5,021	2,183	2,838	130%
MATERIALS	9,702	3,895	5,807	149%
M.I.S.	31,664	33,705	( 2,041 )	( 6% )
COMMUTER RAIL	2,495	1,336	1,159	87%
TOTAL	8,337,183	6,059,455	2,277,728	38%

HOURS (OPERATIONS)	1984 ----	1983 -- -	VARIANCE	% CHANGE
EXECUTIVE OFFICE	2,711	1,320	1,391	105%
DIRECTOR OF OPERATIONS	14,792	9,527	5,265	55%
TRANSPORTATION	189,834	157,949	31,885	20%
ENGINEERING & MAINTENANCE	54,332	44,276	10,056	23%
TRANSPORTATION LIBRARY	0	0	0	0%
RAIL EQUIPMENT MAINTENANCE	36,739	21,973	14,766	67%
GREEN LINE	26,086	25,534	552	2%
AUTOMOTIVE	21,480	17,109	4,371	26%
CONSTRUCTION	179	9	170	1,887%
TREASURER/CONTROLLER	14,473	13,801	672	5%
LAW	0	0	0	0%
REAL ESTATE MANAGEMENT	0	5	( 5 )	( 100% )
POLICE	45,500	26,883	18,617	69%
PERSONNEL	303	129	174	135%
MATERIALS	510	243	267	110%
M.I.S.	1,707	1,914	( 207 )	( 11% )
COMMUTER RAIL	113	115	( 2 )	( 2% )
TOTAL	408,759	320,787	87,972	27%



## TABLE XIV

## CAPITAL DOLLARS AND HOURS

DOLLARS(CAPITAL)	1984 ----	1983 ----	VARIANCE	% CHANGE
EXECUTIVE OFFICE	1,013	900	113	13%
DIRECTOR OF OPERATIONS	9,406	16,937	( 7,531)	( 44%)
TRANSPORTATION	440,976	757,974	(316,998)	( 42%)
ENGINEERING & MAINTENANCE	1,040,663	629,074	411,589	65%
TRANSPORTATION LIBRARY	0	0	0	0%
RAIL EQUIPMENT MAINTENANCE	484,939	187,713	297,226	158%
GREEN LINE	4,338	72,678	( 68,340)	( 94%)
AUTOMOTIVE	151	582	( 431)	( 74%)
CONSTRUCTION	304,138	277,632	26,506	10%
TREASURER/CONTROLLER	134	200	( 66)	( 33%)
LAW	0	0	0	0%
REAL ESTATE MANAGEMENT	0	0	0	0%
POLICE	47,692	7,045	40,647	577%
PERSONNEL	0	1,970	( 1,970)	( 100%)
MATERIALS	376	153	223	146%
M.I.S.	0	0	0	0%
COMMUTER RAIL	1,352	715	637	89%
TOTAL	2,335,178	1,953,573	381,605	20%

HOURS(CAPITAL)	1984 ----	1983 ----	VARIANCE	% CHANGE
EXECUTIVE OFFICE	58	52	6	12%
DIRECTOR OF OPERATIONS	430	844	( 414)	( 49%)
TRANSPORTATION	23,123	42,227	(19,104)	( 45%)
ENGINEERING & MAINTENANCE	43,986	29,785	14,201	48%
TRANSPORTATION LIBRARY	0	0	0	0%
RAIL EQUIPMENT MAINTENANCE	22,010	9,040	12,970	143%
GREEN LINE	186	3,550	( 3,364)	( 95%)
AUTOMOTIVE	2	26	( 24)	( 92%)
CONSTRUCTION	15,392	14,165	1,227	9%
TREASURER/CONTROLLER	8	12	( 4)	( 33%)
LAW	0	0	0	0%
REAL ESTATE MANAGEMENT	0	0	0	0%
POLICE	2,596	575	2,021	351%
PERSONNEL	0	0	0	0%
MATERIALS	20	0	20	N
M.I.S.	0	4	( 4)	( 100%)
COMMUTER RAIL	67	24	43	177%
TOTAL	107,878	100,304	7,574	8%





## PASS PROGRAM

1984 marked the tenth anniversary of the pass program and the first year that sales of passes surpassed the one million mark. Specifically, there were 1,067,230 passes sold to T riders, an 8.7% increase over 1983 sales. Pass revenue for 1984 rose 9.2% to nearly \$30 million.

The C pass which accounts for 38% of pass revenue and 29.5% of all passes sold contributed over \$11 million in income to the T in 1984, a 12.7% increase over 1983. For \$36 a commuter can ride for an entire month all streetcar lines, except for the Riverside line beyond Reservoir, local bus routes, \$1.00 express bus and rapid transit lines (excluding Red Line stops at Quincy Adams and Braintree).

The most widely purchased pass was the B pass. There were over 425,000 passes sold in 1984 yielding a 9.2% revenue increase from the previous year. Although the B pass outsold the C by nearly 110,000 units sold, its lower selling price of \$22 brought in \$2 million less revenue than the C pass. Those who purchase the B pass can ride any rapid transit/streetcar line which regularly carries the \$.60 premium fare including the Mattapan high speed line. This pass excludes use of bus service.

The B and C passes accounted for over 71,000 of the 85,000 additional passes sold in 1984. Since both those passes carry limitations on distance and/or mode, it is reasonable to assume that their purchasers were not long distance commuters from the outer suburbs. It would be interesting to know if they were new



riders converted to public transportation or regular patrons converted to the convenience of the pass program.

A monthly analysis of passes sold revealed that the months of November and December reported the highest revenues for 1984 commanding \$2.7 million and \$2.6 million respectively. August ranked lowest reflecting a seasonal decline in usage by vacationing working commuters and students.

On the whole, the pass program continues to be a success for the MBTA. The 1984 pass revenue accounts for 30% of total passenger revenue.

TABLE XV

MBTA PASS PROGRAM

PASS TYPE	NUMBER SOLD		PASS PRICE	REVENUE		% CHANGE
	1984	1983		1984	1983	
A	205,565	198,618	\$18	3,700,170	3,575,124	3.5%
B	425,193	389,294	\$22	9,354,246	8,564,468	9.2%
C	315,527	279,990	\$36	11,358,972	10,079,640	12.7%
D	50,870	50,354	\$40	2,034,800	2,014,160	1.0%
E	56,870	53,040	\$48	2,693,280	2,545,920	5.8%
F	13,965	10,915	\$56	782,040	611,240	27.9%





## AFFIRMATIVE ACTION

Affirmative Action was a priority item for the MBTA during 1984. In December of 1983, the T Board of Directors approved a ten point program on affirmative action which included strengthening EEO/AA staff, mandating departments to set goals and action plans and putting efforts into outreach programs to attract minorities and females to skill areas with historically low representation. The Board supported its policy action by creating a committee of the Board to "review Authority policy and procedures with regard to affirmative action" and recommend further changes to enhance its AA program. The committee filed its report in June, 1984.

The committee report was generally supportive of T efforts but pinpointed a number of areas in need of attention. Such areas included: the posting of openings and opportunities for advancement; outreach to encourage minority (especially minorities other than Blacks) and female applicants; outreach to minority and women owned businesses eligible for contract work; tracking the career development of minority and female employees; analyzing union contracts for obstacles to minority and female entry/advancement; need for a position and wage classification study; record keeping; monitoring terminations; assuring fair use of discipline. By the end of 1984 advances had been made in many of the areas noted.

The Personnel Office, the EEO/AA Office and the Labor Relations and Workers' Compensation Directorate coordinated efforts to respond to the areas of Board concern. If their reports to



the T Board of Directors are accurate, their progress has been substantial. A new uniform personnel selection procedure was put in place and a procedures manual was developed for dissemination to all appropriate personnel. In September the job classification study was contracted out to the independent firm of Arthur Young. The addition of staff in EEO/AA allowed outreach to new sources of minority and female job applicants including minorities with limited representation among T workers. A Fall survey highlighted workers' training needs; an orientation program for new hires was established; EEO/AA liaisons were appointed in each department. Procedures for filing complaints were widely distributed. Exit interviews and a follow up separation survey was established. A quarterly review of disciplinary action was inaugurated as was a new training module for supervisors on use of discipline. New goals were established for the participation of minority and women owned businesses in Authority contracts along with a system to monitor compliance. Efforts at outreach to such businesses were also set in motion. Results have exceeded expectations. Finally, an updated Affirmative Action Plan has been completed and is currently awaiting state approval.

Table XVI shows the proportion of minority (male and female) and female (all races) employees to total employees as of December in each year from 1978 to 1984. Substantial gains have been made for both groups. Nonetheless, females in general and minority females in particular are under represented in most all departments and across most job categories. Further, minorities

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other than Blacks have not had an equitable share in T jobs. Asians and Native Americans have made no discernible progress since 1980 and Hispanics have realized their first major increase just in the last year (see Table XIX).

TABLE XVI  
MINORITY/FEMALE PERCENT OF MBTA EMPLOYEES

	1984	1983	1982	1981	1980	1979	1978
Total Employees	6598	6241	6125	5937	6708	6592	6556
% Minorities	20.7%	18.2%	16.1%	13.6%	13.3%	12.6%	11.2%
% Females	12.8%	10.6%	8.7%	6.9%	7.3%	7.4%	5.8%

Table XVII shows the distribution of employees among classifications of jobs as of December, 1980 and December, 1984. Minorities have gained in all areas except paraprofessional where they have actually declined in percentage representation. The Service/Maintenance classification which comprises 55% of all Authority positions is the most ethnically mixed with 28.8% of employees from minority groups. Females have been given increased opportunity in the Service/Maintenance area, but still remain just 13.4% of that classification's workforce.





TABLE XVII

## MINORITY/FEMALE PERCENT AMONG MBTA JOB CLASSIFICATIONS

	TOTAL		MINORITY %		FEMALE %	
	1984	1980	1984	1980	1984	1980
Official/Administrator	40	72	7.5	6.9	20.0	2.8
Professional	516	619	9.3	6.9	14.0	12.3
Technician	258	220	13.2	9.5	7.0	1.0
Protective Services	101	53	20.8	17.0	10.9	0.0
Paraprofessional	216	106	15.3	22.6	20.4	15.1
Skilled Craft	1528	1721	8.6	5.0	1.4	0.1
Office/Clerical	280	378	15.4	13.0	62.9	53.7
Service/Maintenance	3659	3539	28.8	19.3	13.4	5.4

Approximately 15% of Service/Maintenance employees are part-time workers. All part-timers have been hired since 1982 when the Authority initiated a program of part-time bus operators. Since then the part-timers have formed the labor pool from which full-time operator openings are filled. Of the 536 part-timers on board at the end of 1984 51.9% were classified as minority and 36.6% were female. Among full-time Service/Maintenance workers 21.2% were classified as minority and 7.8% were female. With attrition, the make up of the full-time pool in Service/Maintenance will change to reflect the higher proportion of both females and minorities currently in the part-time workforce.

Of the 783 T employees hired during 1984, 38.6% were minorities and 30.9% were female. Table XVIII shows a breakdown of 1984 hires by job classification. Considering market constraints especially with skilled craftsmen, the rate of hire of minorities and women in all categories except paraprofessional are quite good. A 48% increase in the number of Hispanic employees is particularly noteworthy.

THE HISTORY OF THE  
CITY OF BOSTON  
FROM 1630 TO 1800  
BY  
JOHN H. COLEMAN  
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TABLE XVIII  
1984 NEW HIRES

	Total	% Minority	% Female
Official/Administrator	3	33.0	67.0
Professional	40	17.5	47.5
Technician	1	0.0	0.0
Protective Service	1	0.0	0.0
Para-professional	12	8.3	16.7
Skilled Craft	144	25.0	10.4
Office/Clerical	23	34.8	78.3
Service/Maintenance	559	44.4	32.7

TABLE XIX  
MINORITIES IN MBTA WORKFORCE

	1984		1980	
	No.	%	No.	%
Total	1350	20.5	923	13.7
Black	1246	18.9	859	12.8
Hispanic	77	1.2	34	0.5
Asian	17	0.3	18	0.2
Native American	10	0.2	9	0.1

The T is to be commended for its aggressive stance on affirmative action. Continued emphasis in the difficult areas of promotion, representation at supervisory levels and assuring equal pay, is necessary as is the increased representation of non-Black minorities among all job classifications.





## THE RIDE

In 1984 the Ride, the MBTA's paratransit service for the disabled and elderly who are unable to use regular public transit, continued to expand its service area. Medford and Revere and previously unserved sections of Arlington, Belmont and Newton were added. In October of 1984, the Board of Directors of the Authority adopted a policy which ensures expansion of the Ride to the 78 communities in the MBTA district by FY 1987.

In 1984 service hours increased 67%, the number of trips rose 42.8% and total mileage went up 81.7%. An analysis of monthly operating statistics shows that much of the increase in service was to areas already served in 1983. The publicity accompanying expansion had the effect of increasing demand in old markets as well as new. The new geographical areas were added in November and December and won't register full impact until 1985.

As ridership increased during 1984, net cost per mile declined 19.1% to below the 1981 level and average length of trip rose 26.4% to 6.7 miles. Cost per service hour fell 12.3% to \$17.94.

The statistics show increasing efficiency on cost per unit of delivered service as service has expanded. But their rosy appearance belies the myriad problems facing the Ride which came to full bloom in late winter: the demand for the Ride far outstripped the Authority's capacity to deliver; the number of vans available and operable was inadequate; the intake system for trip requests could not handle the volume of calls from duly



registered patrons; internal communications at THEM, Inc., the contractor, were problematic; the introduction of computers into the reservation system was problem ridden; management at THEM was stretched too thin; monitoring from the Office of Special Needs at the T was less than adequate; the feedback from Ride patrons was too long ignored.

The Board of Directors of the MBTA in its policy decision on Ride expansion and in its response to complaints from the disabled have shown clear and strong backing for an efficient, usable paratransit system. Somewhere between the enunciation of policy and its implementation problems have developed. It is hoped that General Manager O'Leary and his team can put their fingers on the management and operations difficulties and take swift corrective action. Poor management is not an acceptable excuse for delay in the expansion of this vital transit service to more communities.

As this report goes to print, some of the obvious and more concrete problems have been addressed (telephones, vans, etc.). But it is not yet clear whether the extensive analysis necessary to keep this program expanding, not just surviving, has taken place. 1985 is a key year to get this program on the right track.



"THE RIDE" 1984 OPERATIONS SUMMARY

	SERVICE HOURS	PSNGR TRIPS	TOTAL MILES	TRIPS HOUR	TRIPS LATE	TRIPS MISSED	TRIPS N/A	TRIPS CANC	TRIPS REQUEST	% CANC	% N/A
1ST QUARTER	16,116	29,015	185,260	1.80	166	11	2,666	7,906	39,598	21.4	6.7
2ND QUARTER	20,099	33,079	218,053	1.65	271	66	1,192	6,707	41,044	16.8	2.9
3RD QUARTER	20,209	32,728	225,068	1.62	469	80	1,189	7,204	41,201	18.0	2.9
4TH QUARTER	21,830	36,236	249,105	1.66	351	35	2,038	7,796	46,105	17.7	4.4
TOTAL 1984	78,254	131,058	877,486	1.67	1,257	192	7,085	29,613	167,948	18.4	4.2
TOTAL 1983	55,807	91,834	482,922	1.65	2,076	63	3,339	19,044	114,280	17.2	2.9
% CHANGE	40.2	42.7	81.7	1.8 ( 39.5)	204.8	112.2	55.5	45.0	47.0		

1981-1984 REVENUE AND COST SUMMARY

	OPERATING COSTS	TOTAL REVENUE	NET COST/ TRIP	REV/ TRIP	NET COST HOUR	REV/ HOUR	NET COST MILE	REV/ MILE
1984	1,771,053	98,334	12.76	.75	17.94	1.05	1.91	.11
1983	1,210,408	68,440	12.43	.75	20.46	1.23	2.36	.14
1982	955,360	63,642	10.88	.78	17.24	1.23	2.10	.15
1981	1,007,802	67,523	11.36	.82	17.09	1.23	1.93	.14





## COMMUTER RAIL PERFORMANCE

Calendar year 1984 was a mixed year for service along the MBTA's eight commuter rail lines. Both ridership and revenue on the northside suffered as a result of two pier fires which closed North Station and the Eastern Route north of Salem to all commuter traffic. The net assessable cost of commuter rail service rose nearly 14% primarily as a result of the fires. Yet there were also bright spots during the year. Southside service frequency was increased to accommodate additional riders who flocked to T commuter rail with the reconstruction of the Southeast Expressway. Work was completed on new commuter rail stations at Mishawum/Route 128 in Woburn, Porter Square in Cambridge, downtown Lowell and Back Bay in Boston. Construction progressed on new facilities at both North and South stations in Boston.

Equipment availability remained a problem throughout the year despite the addition of nearly 60 cars leased from the Government of Ontario (GO). Various operational problems on these cars persisted involving the suspension, climate control and door systems. As a result, on average, 30% of the required GO cars were not available for service at any given time. Overall, only 90% of the total required passenger coaches were available for rush hour service during the year. Rush hour equipment availability is shown in Table XXII.

Equipment breakdowns were the major cause of late trains on both the Southside and on the North. The T's aged commuter rail maintenance facilities provide less capacity than is presently









TABLE XXII

## 1984 COMMUTER RAIL RUSH HOUR EQUIPMENT AVAILABILITY

	NORTH	SOUTH	TOTAL
Locomotives	107.4%	100.0%	104.2%
Total Coaches	85.3%	93.4%	98.0%
Pullman Coaches	109.7%	93.4%	96.8%
G0 Coaches	67.4%	76.4%	55.6%
Old Coaches	68.5%	95.0%	74.7%
Budd Coaches	57.1%	106.4%	98.9%
RDC's	95.4%	88.4%	93.7%

required. That fact may explain in part why both sides suffer from frequent equipment shortfalls and delays caused by equipment failure. Commuter rail maintenance facilities range from a nearly 100 year-old central repair base on the north to a new but temporary satellite repair facility on the south. The completion of a new running repair facility for coaches at the Boston Engine Terminal increased maintenance capacity slightly. The incidence of recurrent equipment failures raises questions about the quality of the maintenance work which the B&M undertakes for the MBTA. Although commuter rail coaches and locomotives are periodically shifted among the different routes on both sides, during 1984, Pullman and rebuilt Budd cars remained primarily on southside routes while G0 coaches and older Rail Diesel Cars (RDCs) provided most northside service.

Of the 16,959 rush hour T commuter rail trains scheduled in the peak direction (i.e. inbound in the morning and outbound in the evening) during the calendar year 1984, 92.5% arrived at



their final destination within five minutes of scheduled arrival time. The average delay to passengers on trains more than five minutes late was 16.4 minutes. Table XXIII shows the causes of late or cancelled trains.

TABLE XXIII  
COMMUTER RAIL 1984 PEAK PERIOD SERVICE PERFORMANCE

		NORTH	SOUTH	TOTAL
Rush Hour Trains Scheduled		9,565	7,394	16,959
Rush Hour Trains Late/Cancelled		798	472	1,270
Percent Operated On-Time		91.7%	93.6%	92.5%
Average Delay (Minutes)		16.50	16.26	16.42
Total Rush Hour Trains Cancelled		33	24	57
Causes of Late Trains:				
Crew-Related	#	7	2	9
	%	.9%	.4%	.7%
Dispatching	#	22	51	73
	%	2.8%	10.8%	5.7%
Equipment Failure	#	309	135	444
	%	38.7%	28.6%	35.0%
Signal Failure	#	45	113	158
	%	5.6%	23.9%	12.4%
Track Work	#	112	98	210
	%	14.0%	20.8%	16.5%
Vandalism	#	22	12	34
	%	2.8%	2.5%	2.7%
Miscellaneous	#	281	60	341
	%	35.2%	12.7%	26.9%

As a result of the fragmented operations caused by the North Station and Salem/Beverly bridge fires, northside trains faced slightly more numerous delays than southside trains although the average length of delay was nearly the same on both sides. The



Eastern Route Mainline to Ipswich and Rockport suffered the most delays - 228. Having fewer late trains, but with fewer scheduled peak period trains, the Fitchburg Mainline posted the worst on-time performance results, only 89.4%. The longest delays were experienced by Eastern Route passengers - almost 18 minutes. Table XXIV shows service performance by route.

TABLE XXIV  
COMMUTER RAIL 1984 SERVICE PERFORMANCE BY ROUTE

	RUSH HOUR TRAINS SCHEDULED	RUSH HOUR TRAINS LATE/ CANCELLED	PERCENT OPERATED ON-TIME	AVERAGE DELAY (MINUTES)
Eastern Route Mainline	2,725	228	91.6%	17.95
Merrimack Valley Mainline	2,498	195	92.2%	14.70
New Hampshire Mainline	2,525	182	92.8%	15.83
Fitchburg Mainline	1,817	193	89.4%	17.23
NORTHSIDE SERVICE	9,565	798	91.7%	16.50
Boston & Albany Mainline	1,817	133	92.7%	17.76
Franklin Branch	1,958	91	95.4%	13.94
Shore Line	2,150	134	93.8%	17.60
Stoughton Branch	1,469	114	92.2%	14.73
SOUTHSIDE SERVICE	7,394	472	93.6%	16.26
TOTAL SYSTEM	16,959	1,270	92.5%	16.42

While equipment failures caused delays on both sides, track defects and programmed track work caused more delays for north-side passengers. Delays caused by signal failures and dispatching conflicts were far more numerous on the southside. Unlike the northside where all of the routes branch near North Station, three of the four southside routes share a common mainline for 10 miles. It is on this section of line between South Station and





Readville and along the terminal trackage in South Station where most of the signal failures occurred. Amtrak and Conrail dispatchers, who control train movements over both the Shore Line and the Boston & Albany Mainline, continue to periodically hold MBTA trains behind Amtrak passenger trains and Conrail freight trains. All southside branches have been affected.

Of the reasons for delay, equipment failures, in addition to causing most of the service delays, caused the longest delays - 18.6 minutes. Dispatching conflicts caused the shortest delays - 11.0 minutes. Table XXV shows the mean delay associated with each category.

TABLE XXV  
MEAN COMMUTER RAIL DELAY BY REASON (1984)

REASON	MEAN DELAY (MINUTES)
Crew-Related	16.4
Dispatching	11.0
Equipment Problems	18.6
Signal Problems	18.4
Track/Switch Defect	15.9
Vandalism	11.6
Miscellaneous	14.8

MBTA commuter rail ridership fell slightly (-1.66%) in calendar year 1984 to 11,158,170. The North Station and Beverly/Salem bridge fires can be blamed for the majority of the 16% northside ridership loss. The worst losses were seen on New Hampshire Mainline trains (22%), the only line where passengers could not connect directly with MBTA rapid transit service during



the fire-related diversion. The northside ridership losses were nearly offset by the 13% increase on southside routes. The largest increases were on the Framingham (21.1%) and Attleboro/Stoughton lines (14%), where off-peak and late evening service was offered for the first time. 1984 southside ridership increased by 752,836, primarily as the result of increased service for the SE Expressway project. Detailed ridership figures for each route are shown in Table XXVI.

TABLE XXVI  
COMMUTER RAIL CY1984 RIDERSHIP BY ROUTE

ROUTE	CY1983	CY1984	VARIANCE	%%
Ipswich/Rockport	2,056,013	1,810,797	-245,216	-11.93%
Reading/Haverhill	1,315,141	1,062,762	-252,379	-19.19%
Winchester/Lowell	1,215,470	948,418	-267,052	-21.97%
Fitchburg/Gardner	1,135,963	959,923	-176,040	-15.50%
TOTAL NORTH	5,722,587	4,781,900	-940,687	-16.44%
Wellesley/Framingham	907,179	1,098,657	191,478	21.11%
Norwood/Franklin	1,524,526	1,638,513	113,987	7.48%
Attleboro/Stoughton	3,191,729	3,639,100	447,371	14.02%
TOTAL SOUTH	5,623,434	6,376,270	752,836	13.39%
TOTAL SYSTEM	11,346,021	11,158,170	-187,851	-1.66%

Despite the 1.7% loss of ridership, commuter rail passenger revenue fell by less than \$50,000 (0.33%) to \$16,785,626. The average fare paid per passenger rose to \$1.50 from \$1.48. Since commuter rail zone fares have remained unchanged since September 1981, the rise in average fare suggests a shift in peak passenger flow to more distant stations. Ridership audits confirm that

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many northside riders from inner zones shifted to other transit modes as a result of the service diversions caused by the North Station fire. Additionally, southside ridership increases have taken place primarily outside of the inner two fare zones.

Passenger revenue covered 25.5% of operating costs in CY1984 compared with 28% in CY1983. Commuter rail expenses increased more rapidly than revenue causing the subsidy per passenger to increase by 15% to \$4.41 compared with \$3.81 in 1983. Table XXVII shows commuter rail comparative data for the years 1982-1984.

TABLE XXVII  
COMMUTER RAIL COMPARATIVE STATISTICS 1982-1984

	1982	1983	1984
Total Cost of Operation	\$60,559,007	\$60,067,089	\$65,938,226
% Change From Previous Year	0.87%	(0.81%)	9.77%
Total Revenue	\$15,304,959	\$16,840,677	\$16,785,626
% Change From Previous Year	18.27%	10.03%	(0.33%)
Net Cost of Operation	\$47,096,950	\$45,254,048	\$49,152,600
% Change From Previous Year	(3.91%)	(4.48%)	13.71%
Revenue/Cost Ratio	25.27%	28.04%	25.46%
Total Passengers	10,043,486	11,346,021	11,158,170
% Change From Previous Year	9.70%	12.97%	(1.66%)
Average Subsidy per Passenger	\$4.51	\$3.81	\$4.41
Average Fare Paid	\$1.52	\$1.48	\$1.50



CY 1984 commuter rail operating expenses rose nearly 10% to just below \$66 million. Coupled with the decrease in revenue, the resulting net cost of commuter rail service increased for the first time since 1980 - up 13.7% over CY 1983 to \$49,152,600.

While line item comparisons are currently unavailable [cf. p. 76]., Railroad Operations Directorate (ROD) officials attribute the increase in net cost to the two bridge fires, personal injury settlements, Amtrak expenses, and costs associated with the additional coaches. The greatest cost generators were the non-reimbursable expenses incurred as a result of the two bridge fires, such as initial (pre-construction) track work and substitute busing.

As a cost saving measure, the ROD has been managing the substitute bus service to points north of Salem. Rather than opting to allow the B&M to manage the service, the ROD contracted directly with both Michaud and Kinson Bus Lines, thereby avoiding B&M's standard 12% overhead. Dealing directly with the private carriers will save the T approximately \$200,000 annually.

Due to a small number of large settlements, personal injury expenses increased substantially in 1984. Prior to FY 1985, the Railroad Operations Directorate was required to pay all personal injury settlements out of its departmental budget while other T departments charge this item to the Law Department.

A portion of the expenses incurred by Amtrak for maintaining and dispatching the MBTA-owned Shore Line between Boston and the



Rhode Island state line is billed to the MBTA. Amtrak expenses, which were the subject of negotiation during 1984, more than doubled in 1984 to \$2.5 million and will rise another 60% (to \$4 million) in 1985. Amtrak had requested considerably more than \$4 million.

The addition of the 60 Toronto coaches to the commuter rail fleet meant additional costs for staffing and maintaining the cars. Some of the added expense (limited to peak period southside service) was reimbursed by the Department of Public Works as part of the Southeast Expressway reconstruction project.

Operating funds originally earmarked for certain track maintenance projects were used to pay for service diversions resulting from the two bridge fires. There is concern about the effect on service of postponing critical track and tie work programmed for 1984. Speed restrictions due to poor track conditions were placed on various route segments during the year especially along the Eastern Route Mainline between East Somerville and Salem. The rail failure rate on that section is over 100 times the national average. The track conditions, while not posing an immediate safety hazard, are creating delays for thousands of riders.

A major portion of the commuter rail engineering expense which the operating budget must support could arguably be funded by the T's capital program. Projects such as the laying of welded rail, installation of new ties, and the rehabilitation of signals along long segments of line would be capital items if



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undertaken on the MBTA's rapid transit lines. The ROD has a history of receiving only a minimal share of the capital funds made available to the T each year.

The complexities inherent in managing a \$60 million operating budget while contracting with a private carrier to provide service underscores the need for diligent fiscal oversight. A 1982 Advisory Board report [cf. Commuter Rail Committee Report-Financial Management, 1981 Performance, New Contract Provisions, MBTA Advisory Board, 1982] illustrated serious inadequacies in the fiscal activity of the T's Railroad Operations Directorate.

Three years after the performance report was released and nearly two years after filling the position of Manager of Commuter Rail Finance, many of the inadequacies remain. For example, monthly Commuter Rail Subsidy costs reported in the MBTA Responsibility Report (RAS240), are still inaccurate. There remains no single internal document comparing total expenditures by both the B&M and MBTA against budget. Management reports which are designed to perform some of this function are complicated because expenses are hidden by the ROD's practice of not posting the cost of certain "special projects" and accruals. Moreover, despite repeated assurances from the ROD to routinely provide Advisory Board staff with reports on commuter rail fiscal activity, such reports are not easily obtained.

Of particular importance to the Advisory Board is the fact that the ROD remains unable to easily reconcile commuter rail expenses with either the fiscal year or assessed (calendar year)



net cost. The implications are two-fold. The ROD's ability to monitor costs on a timely basis is limited. In addition, budgeting for future commuter rail expenses is a process made less accurate and less effective by the inability of either the ROD or Advisory Board staff to accurately note historic trends in line item commuter rail expenditures.

## DEVELOPMENTS

### North Station Fire

In late January 1984, the pier supporting the approach tracks to North Station was completely gutted by fire. Rail traffic in and out of the station was suspended. Immediately following the fire, a remarkably swift joint B&M/MBTA plan to operate trains from remote locations was implemented and later streamlined.

Trains from the Eastern Route used a temporary platform built by T personnel at Sullivan Station while trains from the Merrimack Valley Mainline used the commuter platform at Oak Grove in Malden. Both of these stations afforded commuter rail passengers free access to the Orange Line. New Hampshire and Fitchburg route trains operated from a temporary station near the Boston Engine Terminal in East Somerville. MBTA shuttle buses were used to connect the temporary station with North Station. In December 1984, Fitchburg Route passengers began using the new Porter Square Red Line/Commuter Rail Station.

As expected, ridership dropped significantly as a result of





the fire, but riders began trickling back to the trains after connecting services were improved. Where ridership had been down as much as 40% on some routes, by year's end northside ridership was running an average 20% below 1983. Surveys showed that ridership dropped more sharply at stations closest to Boston, such as Lynn, Wakefield, and Waltham, where alternative transit services were available.

Due to the urgent need to regain access to North Station, MBTA and Federal officials moved quickly to secure funding for repairs to the fire-damaged approach. In addition to the new pier, new tracks anchored directly to the concrete roadbed and new platforms which can be easily converted to high-level have been installed at North Station. Construction was completed nearly five months earlier than originally projected and the new North Station was opened for passenger service on April 20, 1985. A more efficient terminal operation allows more peak period trains to use North Station. Ridership will likely build once the word is out that trains again operate directly to North Station.

#### Salem/Beverly Bridge Fire

In November 1984, the railroad bridge connecting Salem and Beverly was destroyed by fire, severing service between the North Shore and Boston. Buses were substituted for trains between North Street in Salem and points north. Ridership toppled along the Eastern Route.

Having learned valuable lessons from the North Station fire,



both the MBTA and UMTA moved quickly to approve funds to rebuild the bridge. Intending to make efficient use of the time when no trains would be operating north of Salem, the MBTA accelerated plans for other improvements to Eastern Route tracks, signals and stations. The entire rebuilding project is scheduled for completion in October 1985.

#### South Station Transportation Center Construction

In June 1984, construction began on what will be a five year project to transform South Station into a multi-modal transportation center. As work progressed, southside passengers have experienced some construction-related service delays. In addition, demolition of a portion of the headhouse required that a temporary station be built adjacent to the track area. Delays should become less frequent as the first newly completed tracks and platforms become available during the next 12-18 months.

#### New B&A Platform at Back Bay

After five years of construction, passengers using Boston & Albany Mainline trains to stations in Newton, Wellesley, Natick and Framingham began using the first portion of what will become a major Commuter Rail/Amtrak/Orange Line station in Back Bay. The B&A platform, located at Dartmouth Street beneath the Copley Place complex, features new lighting and more convenient entrance stairways. Construction of the station structure above the B&A platform (part of the MBTA's Southwest Corridor Project) began in November. The entire complex will be finished by the



end of 1986.

#### Porter Square Red Line Interchange

In December, the MBTA opened the new commuter rail platform at the Porter Square Station in Cambridge. Built as part of the Red Line Northwest Extension to Alewife, the new station allows Fitchburg Mainline passengers from points west and northwest to transfer to Red Line trains to destinations in Boston, Cambridge and Somerville. The new station features direct access from both Massachusetts Ave. and the Red Line, upgraded lighting, benches and enclosed waiting shelters.

#### Mishawum/Route 128 Station

The new commuter rail station at Mishawum Park in Woburn was opened in July 1984. Served by New Hampshire Mainline trains, the station is located just off Route 128 and Washington Street. The area adjacent to the new station is home to many large industrial employers and it is hoped that they will become traffic generators. Surveys indicate that passengers have begun using the station as a destination station. A large park & ride lot will be constructed adjacent to the station during 1985.

#### Needham Branch Service

A final decision was reached during 1984 to reinstate the commuter rail service on the Needham Branch which was





discontinued in 1979 to permit construction of the Southwest Corridor Project. New tracks, signals and stations will be built in Roslindale, West Roxbury and Needham. The Needham Branch is slated to become the first commuter rail line accessible to the handicapped. Construction should be underway in the Fall of 1985 with service to Needham Heights due to start by Winter 1987.

#### Reinstatement of Old Colony Lines Service

During the year, EOTC initiated an Environmental Impact Study to help determine the feasibility of reinstating commuter rail service along the former Old Colony lines on the South Shore. The South Shore is the only sector in Metro Boston without commuter rail service to Boston. Despite broad support by area residents and elected officials, resumption of commuter rail service to Scituate, Plymouth and Middleboro is dependent upon the outcome of the Environmental Impact Study and the availability of Federal funding.

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## CAPITAL PROJECTS

The MBTA's capital improvement program is one of the transit industry's most ambitious. Projects funded by the program include the purchase of new equipment, extension and expansion of rail lines and the rehabilitation of existing plant and rolling stock. The T's capital program is aimed at increasing the system's capacity and improving its efficiency. A summary of 1983 and 1984 MBTA capital activity is shown below.

### SUMMARY OF CONTRACTS AND AMENDMENTS AWARDED CALENDAR YEARS 1983 AND 1984

	1983	1984
Construction Contracts Awarded	\$121,669,795	\$198,336,390
Change Orders Authorized	12,026,153	14,073,496
<b>TOTAL CONSTRUCTION</b>	<b>\$133,695,948</b>	<b>\$212,409,886</b>
Mean Contract Value	4,312,773	7,324,479
Professional Service Contracts Awarded	\$13,131,630	\$6,398,012
Supplemental Agreements Authorized	11,776,361	6,482,891
<b>TOTAL PROFESSIONAL SERVICES</b>	<b>\$24,907,991</b>	<b>\$12,880,903</b>

Most of the T's capital program is Federally funded. The local match or share for individual projects ranges between 15% and 25% of project costs. To fund the local share, the MBTA floats general obligation bonds whose annual debt service, in turn, is reimbursed by the Commonwealth at approximately 90% under Section 28 state contract assistance.





In most years, debt service costs have been increasing at a rate higher than that of the T's operating budget. In the five year period 1979-1983, the MBTA's actual operating costs before state or Federal assistance increased by 22%, or 5.1% per year, while the cost of servicing the funded debt increased by 70% (14.2% per year). In 1984, the trend reversed with debt service costs rising 9.8% and operating costs increasing by 11.3%. Though debt service was budgeted to rise higher in 1984, both the one year delay in the issuance of a planned \$60 million general obligation bond and the use of a lower cost variable rate bond in October 1984 helped keep debt service costs well below budget for CY1984.

#### FIXED CHARGES AND OPERATING EXPENSES 1979-1984

	FIXED CHARGES	OPERATING EXPENSES	FIXED CHARGES AS A % OF T BUDGET
Calendar Year 1979	\$35,162,329	\$261,974,072	12%
Calendar Year 1983	\$59,674,915	\$319,842,100	16%
Mean Annual % Increase 1979-1983	14.2%	5.1%	
Calendar Year 1984	\$65,528,618	\$355,988,298	
% Increase 1983-1984	9.8%	11.3%	

Most costly among the MBTA's capital projects is the construction of rail line extensions. As of December 1984, the MBTA's two major rapid transit construction projects, the Red Line Northwest and the Orange Line Southwest Corridor were 86%



complete in terms of total combined project funds expended. In fact both projects are currently on schedule and below budget.

The following sections describe milestones in the MBTA's capital program reached during 1984.

Over \$1.3 billion is being expended on two major rapid transit extensions. The Red Line's Northwest Extension, almost complete by December 1984, extends the Red Line from the former terminus at Harvard Square 3.2 miles to a new larger facility in West Cambridge at the Arlington town line. At year's end, the project was running over \$1 million under budget; new stations at Porter and Davis Squares were opened for revenue service. Alewife Station, the new terminus, with its 2,000 car garage, opened in April 1985. However, a delay in the completion of the Alewife Brook Interlocking will prevent full use of the train storage yard beyond Alewife Station until September 1985. By December 1984, the overall project was 92% complete with 98% of budgeted funds expended. Further extension of the line beyond Alewife to Arlington Heights is deferred pending the availability of funds.

The \$743 million Southwest Corridor Project (SWCP) which will relocate the MBTA's Orange Line and T Commuter Rail/Amtrak tracks to a new right-of-way is the second major rapid transit extension project. The SWCP involves the construction of two transit and three (four in some locations) railroad tracks between Boston's Back Bay and Forest Hills, a distance of nearly 5 miles. Nine new Orange Line stations are nearing completion at



Chinatown, Back Bay, Massachusetts Ave., Ruggles Street/Northeastern University, Roxbury Crossing, Jackson Square, Jamaica Plain, Green Street and Forest Hills. All major line construction has been completed. Station construction, bridge work and systemwide component installation (tracks, signals, etc.) is well underway. The transit portion of the SWCP uses a direct fixation track system with welded rail directly affixed to the concrete roadbed. The new system should result in a smoother ride and a more stable track geometry requiring less maintenance. As of December 1984, 62% of the project was completed with 76% of budgeted funds expended. Additionally, the SWCP is running almost \$40 million under budget.

Preliminary design was begun during 1984 on two minor rail line extensions: the Blue Line from Bowdoin Square in Boston to a Red Line connection at Charles Street, and the Green Line Northwest to a point beyond Lechmere Square.

In addition to rail line expansion, the MBTA has a number of ongoing plant improvement projects. They can be grouped into seven major areas: Commuter Rail, Maintenance Facilities, Power Improvements, Rehabilitation of Facilities, Station Modernization, Track, Tunnel and Structure Rehabilitation and Vehicle Improvements and Procurements.

The 1984 agenda for the Commuter Rail Improvement Program was dominated by the reconstruction of the two bridges at North Station and Salem damaged by fire. As a result of the fires, capital projects previously programmed for North Station (tracks,





platforms) and the Eastern Route/Gloucester Branch (tracks, signals and stations) were accelerated.

Various track and signal work was completed on the Merrimack Valley Mainline, New Hampshire Mainline, Fitchburg Route and the Stoughton Branch. Track, signal and station work continued on the Attleboro-Hyannis line in anticipation of future passenger service. Station construction was completed at Porter Square in Cambridge, Mishawum/Route 128 in Woburn and Swampscott. Initial pre-construction work was completed along the Needham Branch where passenger service is due to begin in 1986.

Major construction was completed during 1984 at the MBTA central railcar maintenance facility in Everett and the Green Line's Reservoir maintenance shop in Brookline. Completion of this work should help to reduce significantly the T's maintenance backlog. Plans were accelerated during the year for additional construction at Everett and at the Red Line's Cabot facility in South Boston.

Electricity is the T's lifeblood and the MBTA's power distribution system is its umbilical cord. The power improvement program is designed to upgrade the substation and cable network to provide a more powerful and reliable energy source for the MBTA's electrically-powered transit lines. Thirty-one percent of the \$347 million needed to complete the power improvements had been expended by the end of 1984. The power improvement program is due to be completed during 1986.



The Rehabilitation of Facilities program is aimed at improving MBTA buildings, structures and equipment. During 1984, rehabilitation work was completed at the MBTA's Quincy and Albany Street bus depots. Similar work progressed at the Lynn and Cabot depots. Repairs to the Orange Line elevated structure between Dover and Forest Hills, bridge repairs on the Red and Green Lines and parking lot improvements at North Quincy Station were initiated toward the end of 1984. In addition, various tools and non-revenue equipment were purchased in 1984. Nearly 50% of the \$235 million required for projects currently earmarked for funds was expended during 1984.

The modernization of eight Red Line stations is the focus of the Station Modernization program. JFK/UMass, Andrew, Broadway, South Station, Washington and Park Street stations in Boston and Cambridge Center/MIT and Central Square stations in Cambridge are included in the current program. Work will include the lengthening of station platforms to accommodate six-car trains, installation of new escalators, elevators, signage and lighting along with total renovation of station interiors. Only Cambridge Center/MIT was under construction during 1984. Work at the seven remaining stations will begin during 1985.

The South Station Transportation Center (SSTC) is also a part of the MBTA's Station Modernization program. The SSTC will include a new underground connection with the renovated Red Line station. Construction of Phase I, expected to take 18-24 months, began in June 1984 and includes total rehabilitation of the station headhouse, a new train room, new railroad platforms



and 12 new tracks.

During 1984, the Track, Tunnel and Structures program advertised projects to install new track on the Red Line between Harvard and Charles, and on the Green Line between North Station and Boylston. Both of these projects will be in full swing in 1985. Construction of tunnel vent shafts continued at Gillette Park, Long Wharf, Government Center and at the Public Garden. Red Line tunnel structural repairs were completed at Melville Ave. in Dorchester as was work on the Green Line Tunnel between Haymarket and Government Center. Green Line tunnel work between Park and Kenmore will begin during 1985.

A number of projects come under the \$542 million Vehicle Improvements and Procurements program. The reconstruction of 88 Red Line cars by General Electric Corporation was completed during 1984 and most of the cars have entered revenue service. General Electric was awarded the contract for similar work to 76 Silverbird I cars. UTDC[USA] of Detroit was awarded a contract for 54 (later increased to 58) new Silverbird II cars. Both Silverbird projects will be completed by 1986 and will result in a 222-car Red Line fleet - enough to provide six-car trains.

For the Green Line, the construction of 50 new Type 7 Light Rail Vehicles (LRVs) got underway in Japan. The first two cars will be delivered to the MBTA in October 1985. Nine additional Type 6 LRV shells were purchased from Boeing-Vertol in 1984. Interior appointments for the six cars will be installed by MBTA personnel. The cars should enter revenue service late in 1985.





Modifications to the entire Boeing LRV fleet continued. During the year, new SAAB wheels were installed on the motorized trucks on all cars. A new air conditioning maintenance program meant more reliable climate-control. New doors and couplers permitting multiple-unit trains were in place on most cars by year's end.

With encouraging results from the previous 70-bus rehabilitation contract, a second contract to rebuild 80 buses was awarded to Midwest Bus rebuilders in Michigan. The first of the buses rebuilt by Midwest entered service in the Fall. The T spent much of 1984 negotiating with prospective contractors for advanced-design buses. A contract was signed with GMC for 200 RTS-04-series buses (similar to those used by Massport and BAT in Brockton) with an option for 200 more. Half of the new buses will be equipped with wheelchair lifts.



## MBTA SERVICE PERFORMANCE

Overall, 1984 MBTA service presents a mixed record. New Red Line stations opened in Cambridge and Somerville but vehicle, track and signal problems kept service unreliable. Orange Line vehicle availability increased and Blue Line missed trips decreased dramatically, but crowding and delays on both lines increased as a result of new riders diverted to rapid transit because of the two commuter rail bridge fires. Trains on some Green Line routes were increased to two cars but this produced no perceivable change in service reliability or crowded platform conditions as had been expected [cf. Green Line Central Subway Operations, MBTA Advisory Board, 1984.].

Replacement rails installed on segments of each line as part of an emergency maintenance program authorized by the Advisory Board were later found to be defective and removed. MBTA attempts to notify passengers of sudden service changes were thwarted by broken vehicle radios and station PA systems. Monthly pass sales continue to increase yet Advisory Board spot checks show an alarming number of passreader failures. Savings allowed by contracting vehicle and station cleaning with outside vendors were being eroded by an increase in graffiti and vandalism both in stations and on vehicles.

Steps are now being taken to reduce the likelihood of similar events taking place in the future. Major, multi-year track upgrading projects are underway on the Red and Green Lines. New vehicles will be delivered to the MBTA in late 1985 for Red









and Green Line service. Resumption of commuter rail service in 1985 which was closed in 1984 as the result of the bridge fires should relieve crowded conditions on the Blue and Orange Lines. For the first time in many years, fare collection equipment for rapid transit stations is being ordered to replace the less reliable equipment now in service. Stiffer penalties, recently authorized by the Legislature, are now being imposed on those caught defacing or damaging MBTA vehicles or property. The T has also made effective use of the media in publicizing the apprehension and prosecution of vandals.

During 1984, the T improved its ability to match delivered service with scheduled service. The percentage of completed systemwide trips for the MBTA reached 98.6%, the highest level since the Advisory Board began compiling statistics in 1976 and well within the 98% margin set by the Advisory Board. In 1983 the MBTA delivered 98% of its scheduled trips. Table XXVIII shows the trend in service delivery since 1976.

TABLE XXVIII  
WEEKDAY TRIPS OPERATED BY THE MBTA

	<u>TRIPS SCHEDULED</u>	<u>SCHEDULED TRIPS MISSED</u>	<u>%</u>	<u>SCHEDULED TRIPS RUN</u>	<u>PERCENT VARIANCE FROM PREVIOUS YEAR</u>
1984	2,085,612	30,132	1.44	2,055,480	0.08
1983	2,094,219	40,418	1.93	2,053,825	11.04
1982	1,943,983	69,498	3.58	1,874,485	(4.14)
1981	2,016,974	61,652	3.05	1,955,412	(6.57)
1980	2,140,325	47,307	2.21	2,093,018	3.87
1979	2,093,353	78,379	3.74	2,014,975	(0.66)
1978	2,083,494	55,055	2.64	2,028,439	(5.38)
1977	2,205,162	61,444	2.79	2,143,717	7.14
1976	2,054,109	53,166	2.59	2,000,943	-



Systemwide, there were nearly 9,000 fewer trips scheduled in 1984 than in 1983; however, scheduled weekday passenger carrying capacity actually increased by 0.5% [cf. Table XXIX]. The most probable explanation for the change is that during 1984 there were no rail line construction projects requiring substitute bus service. Fewer rapid transit trips, having a much higher passenger capacity, were able in 1984 to carry the same load of passengers as in 1983. Replacement bus service was operated during 1983 along various portions of the Blue and Green Lines as they underwent reconstruction.

TABLE XXIX  
MBTA SYSTEMWIDE SERVICE PERFORMANCE

	1983	1984	INCREASE (DECREASE) FROM 1983	PERCENT VARIANCE
*Revenue Miles Operated	38,658,042	40,040,569	1,382,527	3.58%
*Delivered Annual Capacity	265,334,527	269,135,969	3,801,442	1.43%
Scheduled Weekday Trips	2,094,219	2,085,612		
Weekday Trips Missed	40,418	30,132		
	1.93%	1.44%		
Percent Missed Due to:				
-Vehicle Problems	31.77%	43.24%		
-Crew-Related Problems	28.43%	29.22%		
-Miscellaneous Reasons	39.79%	27.53%		
Throughput Operated		98.90%		
Operating Cost	\$69,928,222	\$78,094,816	\$8,166,594	11.68%
-Cost Per Revenue Mile	\$1.81	\$1.95	\$0.14	7.82%
Vehicle Maintenance Cost	\$35,908,344	\$36,636,527	\$728,183	2.03%
-Cost Per Revenue Mile	\$0.93	\$0.91	(\$0.01)	(1.49%)

\*NOTE-Revenue Miles include weekend service while Delivered Capacity is for Monday to Friday only.



As in 1983, 1984 employee-related missed trips accounted for nearly 30% of total missed trips. Expressed in actual numbers, however, employee-related missed trips dropped by 23%, from more than 11,000 in 1983, to 8,804 in 1984. Since 1982, employee-related missed trips have fallen by almost 75%. [cf. Table XXX].

TABLE XXX  
MISSED TRIPS DUE TO EMPLOYEE-RELATED PROBLEMS

	<u>TRIPS MISSED</u>	<u>EMPLOYEE-RELATED MISSED TRIPS</u>	<u>% CHANGE</u>	<u>AS A % OF MISSED TRIPS</u>
1984	30,132	8,804	(23.38 )	29.22
1983	40,418	11,490	(66.59 )	28.43
1982	69,498	34,388	37.88	49.48
1981	61,562	24,941	67.37	40.51
1980	47,307	14,902	92.04	31.50
1979	78,379	7,760	( 5.41 )	9.90
1978	55,055	8,203	45.11	14.90
1977	61,444	5,653	39.91	9.20
1976	53,166	4,040	-	7.60

Late in 1983, the MBTA began reporting an additional measure of service performance for rail lines, throughput. Throughput measures delivered capacity within a specific time period. The Authority reports throughput on all rail lines during the three hours of morning and three hours of evening peak periods. Although comparisons with calendar year 1983 are unavailable, 1984 results, expressed as the combined average percentage of scheduled throughput delivered for both AM and PM periods, are included in this report. During 1984, the MBTA operated 99% of its scheduled rail line throughput.

Peak period throughput levels give an indication of the





MBTA's ability to operate its service as scheduled. However, aside from monitoring rail line throughput (which only yields a cursory illustration of the complete service picture), the MBTA does little to measure schedule adherence. The T has no comparable measure for deliverance of bus service which constitutes 54% of annual revenue miles and 42% of passenger capacity. Though the importance of schedule adherence has been acknowledged by the T as has its own deficiency in monitoring schedule adherence, little effort was made by the MBTA in this area during 1984. A 1982 MBTA study of bus service reliability (SENTRY project) showed that of the 13 American and Canadian transit properties surveyed, only the MBTA lacked a formal mechanism for measuring on-time reliability.

The following sections will describe MBTA service performance by line. Detailed tables illustrate the change in performance levels from 1983 to 1984. Measures of service performance (and their source) appearing in this report are defined as follows:

- o REVENUE MILES are service miles operated for passenger service. They do not include pull-outs from the garage, pull-backs, or any other non revenue-producing mileage. Early in 1985, the MBTA had its revenue mileage database for 1984 independently audited. Revenue miles normally appear in MBTA REV150. 1984 figures shown in this report are the final audited numbers as adjusted by the Revenue Auditing Section of the Treasurer-Controller's Department.



- o DELIVERED ANNUAL CAPACITY measures the number of passenger spaces (seats + standees) provided on weekdays during the year by the MBTA. Capacity is calculated by multiplying the peak capacity (crush load) of each vehicle type by the number of delivered round-trips and, if necessary, by the number of vehicle units per train.
- o SCHEDULED AND MISSED WEEKDAY TRIPS are expressed in terms of round-trip train trips or bus trips rather than vehicle trips as in years previous to 1983. Figures for years prior to 1983 are adjusted using conversion factors determined by MBTA, CTPS and Advisory Board staff. Scheduled and missed weekday trips appear in the MBTA's Daily Service Report.
- o RAIL LINE THROUGHPUT is a measure of capacity based on the number of rail cars which pass a given point during a specific time period. Throughput figures are taken from the MBTA's Daily Service Reports.
- o DIRECT TRANSPORTATION COST (OPERATING COST) is the cost assigned to each operating area for the provision of transportation. It consists primarily of operators and starters wages. Direct transportation cost does not include administrative, fuel, maintenance or overhead expenses. Direct transportation costs are from the MBTA Responsibility Report, RAS240.
- o VEHICLE MAINTENANCE COST is the expense associated with regular maintenance of revenue passenger vehicles. Not included in this figure is the cost of heavy repairs such as



collision damage. Direct vehicle maintenance costs appear in MBTA RAS240.

Energy costs (i.e. diesel fuel and electricity purchased for propulsion) are not included in either the operating or maintenance cost items which appear in this report. An accurate breakdown of fuel costs by operating area is unavailable.

#### RAPID TRANSIT LINES SERVICE PERFORMANCE

Service performance along the MBTA's three rapid transit lines improved in 1984. Major track work, which helped improve service performance, was completed on the Blue Line and was begun on sections of both the Red and Orange Lines. Revenue miles increased by over 800,000 to 13.3 million miles. The percentage of scheduled weekday rapid transit trips not operated fell from 5.5% in 1983 to 2.6% in 1984. The actual number of missed rapid transit trips dropped from 7,798 to 3,818.

As in previous years, the T's Red Line accounted for the majority of missed rapid transit trips. The Blue and Orange lines continued to provide reliable service with the Blue Line experiencing a significant drop in the number of missed trips. Table XXXI shows MBTA rapid transit service performance for 1984. The sections which follow detail service performance along each of the MBTA's three rapid transit lines.





TABLE XXXI  
MBTA RAPID TRANSIT SERVICE PERFORMANCE

	1983	1984	INCREASE/ (DECREASE) FROM 1983	PERCENT VARIANCE
*Revenue Miles Operated	12,557,924	13,366,261	808,337	6.44%
*Delivered Annual Capacity	98,040,992	101,046,034	3,005,042	3.07%
Scheduled Weekday Trips	143,066	144,574		
Weekday Trips Missed	7,798	3,818		
	5.45%	2.64%		
Percent Missed Due to:				
-Vehicle Problems	17.20%	39.99%		
-Crew-Related Problems	14.17%	16.99%		
-Miscellaneous Reasons	68.62%	43.03%		
Throughput Operated		99.40%		
Operating Cost	\$20,777,870	\$23,784,939	\$3,007,069	14.47%
-Cost Per Revenue Mile	\$1.65	\$1.78	\$0.12	7.55%
Vehicle Maintenance Cost	\$7,281,522	\$6,663,046	(\$618,476)	(8.49%)
-Cost Per Revenue Mile	\$0.58	\$0.50	(\$0.08)	(14.03%)

\*NOTE-Revenue Miles include weekend service while Delivered Capacity is for Monday to Friday only.

#### Red Line

Although service performance improved during 1984, the Red Line continued to post the worst performance results among the T's three rapid transit lines. The Red Line, which accounts for 41% of scheduled trips, accounted for 73% of the MBTA's missed rapid transit trips. Actual Red Line trips missed decreased 18% in 1984 to 2,781, or 4.73% of scheduled trips, down from 5.8% in 1983. Nearly 50% of 1984 trips missed were reported as being caused by vehicle problems. According to Operations Directorate records, vehicle problems are the major reason the Red Line



operated only 92% of its scheduled rush hour throughput.

TABLE XXXII  
RED LINE SERVICE PERFORMANCE

	1983	1984	INCREASE/ (DECREASE) FROM 1983	PERCENT VARIANCE
*Revenue Miles Operated	6,585,106	6,833,164	248,058	3.77%
*Delivered Annual Capacity	49,405,915	48,748,250	(657,665)	(1.33%)
Scheduled Weekday Trips	60,189	58,744		
Weekday Trips Missed	3,471	2,781		
	5.77%	4.73%		
Percent Missed Due to:				
-Vehicle Problems	33.75%	47.68%		
-Crew-Related Problems	16.85%	17.13%		
-Miscellaneous Reasons	49.39%	35.19%		
Throughput Operated		92.00%		
Operating Cost	\$9,829,391	\$11,269,064	\$1,439,673	14.65%
-Cost Per Revenue Mile	\$1.49	\$1.65	\$0.16	10.48%
Vehicle Maintenance Cost	\$4,886,166	\$3,774,929	(\$1,111,237)	(22.74%)
-Cost Per Revenue Mile	\$0.74	\$0.55	(\$0.19)	(25.55%)

\*NOTE-Revenue Miles include weekend service while Delivered Capacity is for Monday to Friday only.

Red Line maintenance personnel continued their struggle to keep the Red Line fleet in operating condition. Completion of the in-house 1400-series (so-called Bluebird) car rebuild program during 1984 freed up additional Red Line maintenance resources. The shift in work load meant the end of the extra shift at Cabot Carhouse and resulted in a 22% drop in maintenance expenditures. Even with the added maintenance capacity, 1984 results were not



encouraging. Vehicle-related missed trips on the Red Line increased by 13% and accounted for 87% of all vehicle-related missed rapid transit trips.

Red Line operations were substantially changed during 1984. In December, partial passenger service was initiated over the Red Line's Northwest Extension to stations at Porter Square in Cambridge and Davis Square in Somerville. Prior to the opening of Porter and Davis, passenger service extended only to Harvard Square but trains were required to travel to Davis to reverse direction. This practice gained the T valuable operating experience.

Overall, the Northwest Extension of the Red Line was nearly 90% completed by the end of 1984. The main entrance and mezzanine at the T's Harvard Square station neared completion in December and was opened in March 1985. The bus tunnels are scheduled for completion in the Fall. The Alewife Station/Garage complex was structurally complete with final finish work continuing through the Winter. Train service to the Alewife terminal began in April 1985. Initially, Ashmont trains will serve Alewife throughout the service day and Braintree trains will serve the station during off-peak hours only, reversing at Davis in the interim. Full train service to Alewife will begin in September 1985 upon the completion of the Arlington train storage yard.

During 1984, reconstruction began on the Southeast Expressway which parallels the Red Line's South Shore branch. In





an effort to supplement Braintree service and to provide more reliable service to Quincy passengers, the T began short-turn train service between Quincy Center and Park Street. However, continuing service problems kept many would-be commuters away from the Red Line. Meanwhile, the T's newly opened Quincy/Adams Station rapidly gained acceptance from South Shore commuters as an alternative to Expressway traffic congestion.

### Orange Line

Despite the added load of passengers diverted to the Orange Line from commuter rail trains due to the North Station fire, the MBTA's Orange Line continued to provide some of the best service on the T system. Although both the number of missed trips and the percentage of scheduled trips missed increased during 1984, Orange Line missed trips still amounted to fewer than three round trips per weekday. The Orange Line delivered 5.6% more weekday passenger capacity in 1984 than in 1983. Table XXXIII illustrates Orange Line performance in 1984.

Extra (non-scheduled) service provided between Wellington and Essex stations because of the bridge fire at North Station helped boost Orange Line revenue miles by 6.6% to 4.2 million. Rush hour throughput delivery averaged 105% during the year, reflecting the added service. Direct Orange Line transportation costs (not including energy costs) rose by 13% during 1984 but the cost per revenue mile increased by only 6%.



TABLE XXXIII  
ORANGE LINE SERVICE PERFORMANCE

	1983	1984	INCREASE/ (DECREASE) FROM 1983	PERCENT VARIANCE
*Revenue Miles Operated	3,909,478	4,167,715	258,237	6.61%
*Delivered Annual Capacity	29,282,785	30,915,175	1,632,390	5.57%
Scheduled Weekday Trips	41,032	43,518		
Weekday Trips Missed	419	641		
	1.02%	1.47%		
Percent Missed Due to:				
-Vehicle Problems	13.73%	6.71%		
-Crew-Related Problems	45.75%	18.27%		
-Miscellaneous Reasons	40.50%	75.02%		
Throughput Operated		104.60%		
Operating Cost	\$7,243,458	\$8,180,325	\$936,867	12.93%
-Cost Per Revenue Mile	\$1.85	\$1.96	\$0.11	5.94%
Vehicle Maintenance Cost	\$1,181,069	\$1,520,215	\$336,146	28.72%
-Cost Per Revenue Mile	\$0.30	\$0.36	\$0.06	20.74%

\*NOTE-Revenue Miles include weekend service while Delivered Capacity is for Monday to Friday only.

#### Blue Line

Blue Line riders enjoyed increasingly more reliable service during 1984. The Blue Line missed less than 1% of its scheduled trips during 1984 compared to over 9.3% in 1983. Over 80% of the missed trips in 1983 were in some way related to Blue Line reconstruction which was in full swing for most of the second half of 1983. With new ties and continuous welded rail in place in 1984 between Logan Airport and Wonderland in Revere, the improvement in service quality was pronounced. Table XXXIV shows MBTA Blue Line service performance during 1984.



TABLE XXXIV  
BLUE LINE SERVICE PERFORMANCE

	1983	1984	INCREASE/ (DECREASE) FROM 1983	PERCENT VARIANCE
*Revenue Miles Operated	2,063,340	2,365,382	302,042	14.64%
*Delivered Annual Capacity	19,352,292	21,382,609	2,030,317	10.49%
Scheduled Weekday Trips	41,845	42,312		
Weekday Trips Missed	3,909	396		
	9.34%	0.94%		
Percent Missed Due to:				
-Vehicle Problems	2.89%	39.77%		
-Crew-Related Problems	8.40%	13.89%		
-Miscellaneous Reasons	88.70%	46.34%		
Throughput Operated		106.60%		
Operating Cost	\$3,705,021	\$4,335,550	\$630,529	17.02%
-Cost Per Revenue Mile	\$1.80	\$1.83	\$0.04	2.08%
Vehicle Maintenance Cost	\$1,214,287	\$1,367,902	\$153,615	12.65%
-Cost Per Revenue Mile	\$0.59	\$0.58	(\$0.01)	(1.73%)

\*NOTE-Revenue Miles include weekend service while Delivered Capacity is for Monday to Friday only.

With full Boston to Revere service operated for the entire year, revenue miles increased by nearly 15% to 2.4 million and annual passenger capacity increased by 10.5% to 21.4 million. Also helping to boost revenue miles was the operation of non-scheduled (RAD or run-as-directed) Blue Line trains to accommodate the extra riders diverted from Eastern Route commuter rail trains. For a time, commuter rail passengers from stations in Beverly, Salem and Swampscott were being bussed directly to the Blue Line's Wonderland terminal. The extra service also





helped in keeping the percentage of scheduled rush hour throughput operated above 100%.

Completion of the Blue Line reconstruction allowed more efficient use of vehicle and manpower resources and helped minimize the increase in operating cost per revenue mile. The increase in operating cost (net of energy costs) per revenue mile was a minimal 2% despite a 17% increase in total operating costs. Blue Line vehicle maintenance costs increased by over 12% but the maintenance cost per revenue mile decreased by nearly 2% as a result of the 15% increase in Blue Line revenue miles.

Problems discovered in 1983 involving the interface between wheels and track caused fewer service delays during 1984. New guard rails were installed at critical locations including those where derailments occurred in 1983. Full speed service was operated throughout the year to the delight of regular commuters. The wheel-track interface problem is also occurring, although to a lesser extent, on the Orange Line. The MBTA's blue ribbon team looking into the problem has not yet completed its study.

Feeder bus service to the Blue Line improved, particularly on Sundays, following the completion of construction in January 1984. The T began operating Sunday service on Route 440, Central Square, Lynn via Lynnway directly from Wonderland Station. Sunday service frequency on the two Maverick Square via Chelsea routes doubled.



## STREETCAR LINES SERVICE PERFORMANCE

The MBTA operates streetcar service along four subway/ surface routes which comprise the Green Line. In addition, streetcars are operated on a three mile route between Ashmont Station on the Red Line and Mattapan Square. Since the Mattapan/Ashmont Line is part of the Arborway Rating Station, service performance data for that line was included with data for the Arborway Line. Starting in 1984, the MBTA began listing Mattapan/Ashmont Line service performance data separately from Green Line data in its Daily Service Reports. Since separate comparative data is not available for 1983, streetcar data remains in aggregate form. Service on the Mattapan/Ashmont Line is somewhat insulated from the variety of conditions which commonly disrupt Green Line operations. The Mattapan/Ashmont Line has a private right-of-way with only one grade crossing, welded rail on concrete ties and single car operation. As a result, service on that line usually outperforms service on the Green Line.

In many respects, streetcar service performance remained unchanged during 1984. There were only 43,180 more revenue miles operated in 1984 than in 1983, less than a 1% increase. There were more than 3,000 fewer missed streetcar trips during the year. Although the number of scheduled weekday trips fell by 3%, delivered weekday passenger capacity increased by 1.35% resulting, in part, from the introduction in 1984 of two-car LRV trains. The percentage of scheduled trips missed fell to 3.4% from 4.7%.



TABLE XXXV  
MBTA STREETCAR LINES SERVICE PERFORMANCE

	1983	1984	INCREASE/ (DECREASE) FROM 1983	PERCENT VARIANCE
*Revenue Miles Operated	5,069,789	5,112,969	43,180	0.85%
*Delivered Annual Capacity	55,507,050	56,256,684	749,634	1.35%
Scheduled Weekday Trips	262,006	254,330		
Weekday Trips Missed	11,928	8,760		
	4.55%	3.44%		
Percent Missed Due to:				
-Vehicle Problems	21.32%	39.61%		
-Crew-Related Problems	17.37%	18.12%		
-Miscellaneous Reasons	61.30%	49.27%		
Throughput Operated		96.80%		
Operating Cost	\$12,537,214	\$14,132,472	\$1,595,258	12.72%
-Cost Per Revenue Mile	\$2.47	\$2.76	\$0.29	11.77%
Vehicle Maintenance Cost	\$8,677,259	\$9,050,720	\$373,461	4.30%
-Cost Per Revenue Mile	\$1.71	\$1.77	\$0.06	3.42%

\*NOTE-Revenue Miles include weekend service while Delivered Capacity is for Monday to Friday only.

While the above data shows some sign of improvement in service performance, much of what Green Line passengers consider as poor service is not illustrated. For example, while service interruptions do affect throughput levels, the annoying (and commonplace) MBTA practice of poor passenger communications, random destination sequencing and unreliable LRV air-conditioning affect consumers' patience. During the year, Advisory Board staff took an in-depth look at Green Line operations in the Central Subway from Government Center to Kenmore Square. In brief, the study team found Green Line service to be unpredict-





able, plagued by a multitude of inefficient operating practices which create serious delays. In four of five categories, the study team felt better employee training would improve service.

Many of the problems which hampered MBTA streetcar service during 1983 remained in place during 1984. In addition to the poor track conditions in the Central Subway (through which all Green Line service is routed), speed restrictions were placed on the East Cambridge Viaduct because of the weak support structure and poor track conditions. Also, a collapsed culvert caused speed restrictions to be posted on the Riverside Line near Newton Center.

Although LRV and PCC availability remained above 100% at the start of the rush hour, peak period passenger traffic demand seemed to exceed delivered capacity. The January 1984 fire at North Station created new demands for service north of Government Center. Additional Lechmere shuttle trains were placed in service to assure northbound passengers adequate service levels.

The Green Line's Arborway Branch continued to suffer the most frequent service delays. In September 1984, the MBTA initiated LRV service on a route between Heath Street and Park Street. In doing so, the MBTA increased the total number of trips scheduled along Huntington Avenue. Yet, Arborway Branch trains remained crowded and continued to bunch for the remainder of 1984. Heath Street LRV's became increasingly rare and the reduced number of trains to the Arborway terminal were hard



pressed to perform the duties of both services.

On a given day during Fall 1984, between 8% and 25% of all scheduled Heath Street trips were missed. The majority of missed trips were the result of the diversion of Heath Street LRVs to other Green Line branches.

The tendency to keep LRVs in service along the Riverside, Beacon Street and Commonwealth Avenue lines and, if necessary, to pull them from Heath Street service, stems from the divisional separation of the MBTA's streetcar lines. The Arborway and Mattapan-Ashmont lines form the Arborway District while the other three Green Line branches form the Reservoir District. In addition, a third district comprised of employees working in the Green Line Central Subway formed the Central District.

During 1984, the Central and Reservoir Districts were merged. The Arborway District will be merged with the others during 1985. The unified Light Rail Division should mean more coordinated decisionmaking and balanced service levels on all Green Line branches. Vehicles will continue to be based at different MBTA facilities, but LRVs operating on the Arborway Line will no longer be considered "straying from the path". All operators will be trained in operating both PCC and LRV vehicles. Related to the merger is the formation of the Light Rail Vehicle Maintenance Department whose sole responsibility will be the maintenance of the MBTA's 60 PCC cars, 130 Boeing LRVs and beginning late in 1985, the 50 Japanese Type 7s. Responsibility for streetcar maintenance had been an offshoot of the



## Rail Equipment Department.

Aside from the aforementioned operating problems facing the Green Line during 1984, the MBTA initiated a number of programs which should positively affect T streetcar service in the near future.

o TWO-CAR TRAINS - The installation of new drawbars and couplers during 1984 allowed the resumption of multiple unit Green Line trains. Starting in Fall 1984, the MBTA began providing peak period service on the Riverside branch using two-car LRV trains. The operation of two-car Riverside trains was studied as part of the staff report on Green Line Central Subway Operations. Because there was an insufficient number of LRVs available to actually increase the carrying capacity of the line, train headways were simply doubled. With all other factors held constant, the operation of multiple unit trains should result in less crowding and a quicker ride. However, due to the existence of exterior factors, the Advisory Board study team results were inconclusive about the effects of two-car train operation. Nonetheless, the study recommended the expansion of multiple-unit train operation on the Green Line. In January 1985, the MBTA began two-car train service during rush hours on all Green Line services except to Heath Street and on the Lechmere shuttle.

o RESERVOIR MAINTENANCE FACILITY - The MBTA's Reservoir Maintenance Facility was completed during 1984. Maintaining Green Line trains at the more central Reservoir location will





mean fewer non-revenue miles operated and, hopefully, a higher LRV availability rate. The bad news is that the vacuum revenue extraction unit had not been installed when the Reservoir facility opened. All LRVs based at Reservoir must travel to the Boston College terminal for revenue processing - increasing non-revenue miles and operating costs.

- o CENTRAL SUBWAY TRACK RECONSTRUCTION PROJECT - Late in 1984, the MBTA awarded a contract to J. F. White Corporation for the reconstruction of Green Line roadbed and tracks between North Station and Boylston. The project is expected to be completed by the end of 1986. Phase I, which involved the Park Street inner loop and the approach tracks, was finished ahead of schedule in June 1985. Phase II will complete the section between Park Street and Government Center.
- o NORTH STATION ALIGNMENT - The T's Board of Directors approved a final alignment for the new Green Line subway section at North Station between Haymarket and Science Park stations. The Board's approval marks the completion of many years of complicated alternatives analysis and paves the way for final EIS and preliminary engineering efforts to begin. Construction, which will include a new underground transfer station between the Green and Orange lines, is dependent upon the availability of Federal funds.



## BUS AND TRACKLESS TROLLEY LINES SERVICE PERFORMANCE

Service performance on the MBTA's expansive bus network continued at the high levels of performance attained in 1983. Additional frequency on a number of bus routes helped to boost bus revenue miles by nearly 8% to 21.5 million miles. Operating costs (not including fuel costs) per bus revenue mile increased by only 2% even though 1984 total operating costs increased by 10%. Similarly, the MBTA's bus maintenance cost per revenue mile fell 3% during 1984.

Table XXXVI shows aggregate 1984 performance data for the MBTA's bus and trackless trolley system.

TABLE XXXVI

### MBTA BUS AND TRACKLESS TROLLEY LINES SERVICE PERFORMANCE

	1983	1984	(DECREASE) FROM 1983	PERCENT VARIANCE
*Revenue Miles Operated	20,030,329	21,561,339	1,531,010	7.64%
*Delivered Annual Capacity	111,786,485	111,833,251	46,766	0.04%
Scheduled Weekday Trips	1,689,147	1,686,709		
Weekday Trips Missed	20,692	17,556		
	1.22%	1.04%		
Percent Missed Due to:				
-Vehicle Problems	44.86%	45.77%		
-Crew-Related Problems	41.81%	37.44%		
-Miscellaneous Reasons	13.32%	16.79%		
Operating Cost	\$36,613,138	\$40,177,405	\$3,564,267	9.73%
-Cost Per Revenue Mile	\$1.83	\$1.86	\$0.04	1.94%
Vehicle Maintenance Cost	\$19,949,563	\$20,922,761	\$973,198	4.88%
-Cost Per Revenue Mile	\$1.00	\$0.97	(\$0.08)	(2.57%)

\*NOTE-Revenue Miles include weekend service while Delivered Capacity is for Monday to Friday only.



The percentage of scheduled MBTA bus trips missed during 1984 remained near 1%. As in 1983, the major cause of missed bus trips was vehicle problems (i.e. bus breakdowns or accidents). There were virtually no missed bus or trackless trolley trips due to unavailable vehicles during the year - a tremendous improvement over previous years.

TABLE X  
SERVICE PERFORMANCE BY BUS GARAGE

GARAGE	SERVICE AREA	% SCHEDULED TRIPS MISSED	
		1983	1984
Albany	Express Routes, Newton, Waltham, Watertown, Needham	1.38	1.11
Bartlett	Roxbury, Hyde Park, Roslindale, Jamaica Plain, West Roxbury, Mattapan, Brookline, Allston	1.56	1.33
Charlestown	Charlestown, Somerville, Cambridge, Medford, Arlington, North and Northwest Suburban	0.85	0.66
Quincy	Quincy, Randolph, Weymouth, South Suburban, South Shore	0.74	0.83
Lynn	East Boston, Lynn, Saugus, Salem, Swampscott, Marblehead, North Shore	0.56	0.59
Cabot	Downtown Boston, South Boston, Dorchester, Upper Roxbury, Cambridge, Brighton, Watertown	1.91	1.69
Fellsway	Medford, Malden, Everett, Revere, Chelsea, Saugus, points North to Reading	0.61	0.53
N Cambridge	Trackless Trolleys in Belmont, Cambridge, Watertown	0.69	1.05





Advisory Board staff took a cursory look at MBTA bus maintenance procedures during the year. Indications were that the T's Automotive Equipment Maintenance Department was working more diligently in 1984 at assuring: a.) that all buses in the active fleet received preventive maintenance inspections at specified mileage intervals; b.) that up-to-date records were being kept for work completed on all vehicles; c.) that a sufficient number of buses were available for all morning and afternoon pullouts; d.) that work conditions and employee morale were conducive to producing a satisfactory product. Noteworthy was the slight decentralization in the application of preventive maintenance procedures. Garage foremen were allowed a certain degree of autonomy in setting preventive maintenance inspection intervals based on past vehicle performance, route profiles and worker productivity.

#### New Bus Services

In addition to many minor bus service improvements which took place systemwide during 1984, the T provided new service along four separate routes. Route 260 operated from March to September 1984 between Braintree Station on the Red Line and Canton Junction Station on commuter rail's Shore Line. Initiated as part of the T's program to provide alternatives for commuters during the reconstruction of the Southeast Expressway, Route 260 did not develop sufficient patronage to warrant its operation and was discontinued.

Upon the completion of the Winthrop Street Bridge in Medford, Route 96 service along Boston Avenue and High Street was



discontinued and moved to its original alignment via George Street. Route 94 between Medford Square and Harvard Square in Cambridge was inaugurated to maintain service through West Medford.

Two route variations were placed into effect in Newton during 1984. Route 59A now provides bus service to the Needham Street industrial area near the Newton city line. Certain Route 52 trips were routed along Winchester Street to serve the Community Center.

#### Bus Remanufacturing Program

The T's on-going program to remanufacture older buses instead of purchasing new vehicles met with considerable success. During 1984, the MBTA contracted with Midwest Coach Builders of Michigan for the remanufacture of 80 older T buses. For nearly \$50,000 per bus (versus \$130,000-\$150,000 for new buses), the T will receive a like-new product which will provide service for an additional eight to ten years.

#### Bus Scrapping

The MBTA received permission from UMTA to scrap 128 older buses, most of which have been out of service for a number of years. The majority of the buses being scrapped are of the highly unreliable AM General type. In addition to scrapping 128 buses, the MBTA began preparations in late 1984 to sell older buses. The result of both programs will be a reduction in inventory and much-needed additional storage space at T garages.





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